PRO SERIES ROTARY CUTTERS

PRORC60, PRORC72

191587, 191588

TITAN ATTACHMENTS

Operator's Manual

Read the Operator's Manual entirely. When you see thissymbol, the subsequent instructions and warnings are serious follow without exception. Your life and the lives of others depend on it!

THESE ARE STANDARD PRACTICES THAT MAY NOT APPLY TO THE PRODUCTS DESCRIBED IN THIS MANUAL.

SAFETY AT ALL TIMES

Thoroughly read and understand the instructions given in this manual before operation. Refer to the "Safety Label" section, read all instructions noted on them. Do not allow anyone to operate this equipment who has not thoroughly read and comprehended this manual. Do not allow anyone who has not adequately trained in the safe operation of the equipment.

- The operator should be familiar with all functions of the unit.
- Operate implement from the driver's seat only.
- Make sure all guards and shields are in place and secured before operating the tool.
- Do not leave a tractor or implement unattended with the engine running.
- Dismounting from a moving tractor could cause severe injury or death.
- Do not allow anyone to stand between tractor and implement while backing up to implement.
- Keep hands, feet, and clothing away from power-driven parts.
- Wear snug-fitting clothing to avoid entanglement with moving parts.
- Watch out for wires, trees, etc., when raising implements. Make sure all persons are clear of the working area.
- Turning the tractor too tight may cause implement to ride upon wheels. This activity could result in injury or equipment damage.
- Do not carry passengers on the tool at any time.

LOOK FOR THE SAFETY ALERT SYMBOL

The **SAFETY ALERT SYMBOL** indicates a potential hazard to personal safety, and individuals must take safety precautions. When you see this symbol, be alert and carefully read the message that follows it. In addition to the design and configuration of equipment, hazard control and accident prevention depend on the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage.

BE AWARE OF SAFETY ALERT WORDS

DANGER: Indicates imminently hazardous practices. A situation that, if not avoided, will result in death or severe injury. The signal word is limited to the most extreme situation, typically for machine components that, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or severe injury, and includes hazards that are exposed when guards remove. Use warnings to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that may result in minor or moderate injury if not avoided. It may also be used to alert against unsafe practices.

FOR YOUR PROTECTION
Thoroughly read and understand the "Safety Label" section, read all instructions noted on them.

SHUTDOWN AND STORAGE
- Lower machine to the ground, put the tractor in park, turn off the engine, and remove the key.
- Detach and store implements in an area where children typically do not play

USE SAFETY LIGHTS AND DEVICES
- Slow-moving tractors, self-propelled equipment, and towed implements can create a hazard when driven on public roads. They are challenging to see, especially at night.
- Flashing warning lights and we recommend turn signals whenever driving on the public road.

TRANSPORT MACHINERY SAFELY
- Comply with state and local laws
- The maximum transport speed for implement is 20 mph, DO NOT EXCEED. Never travel at a rate that does not allow adequate control of steering and stopping. Some rough terrain requires a slower speed.
- Sudden braking can cause a towed load to swerve and upset. Reduce speed if the towed load is not equipped with brakes.

Use the following maximum speed – tow load weight ratios as a guideline:
- 20 mph when weight is less than or equal to the weight of the tractor.
- 10 mph when weight is double the weight of the tractor.

IMPORTANT: Do not tow a load that is more than double the weight of the tractor.

KEEP RIDERS OFF MACHINERY
- Riders obstruct the operator's view; they could be struck by foreign objects or thrown from the machine.
- Never allow children to operate equipment.

- Practice Safe Maintenance
- Understand procedure before doing work. Use proper tools and equipment; refer to Operator's Manual for additional information.
- Work in a clean, dry area
- Lower the implement to the ground, put the tractor in park, turn off the engine, and remove the key before maintenance.
- Allow implement to cool completely.
- Do not grease or oil implement while it is in operation.
- Inspect all parts. Make sure details are in good condition and installed correctly.
- Remove the buildup of grease, oil, or debris.
- Remove all tools and unused parts from implementation before operation.

PREPARE FOR EMERGENCIES

- Be prepared if a fire starts.
- Keep a first aid kit and fire extinguisher handy
- Keep emergency numbers for doctor, ambulance, hospital, and fire department near the phone.

WEAR PROTECTIVE EQUIPMENT

- Wear protective clothing and equipment appropriate for the job. Avoid loose-fitting clothing.
- Prolonged exposure to loud noise can cause hearing impairment or hearing loss. Wear suitable hearing protection such as earmuffs or earplugs.
- Operating equipment safety requires the full attention of the operator. Avoid wearing radio headphones while operating machinery.

AVOID HIGH-PRESSURE FLUIDS HAZARD

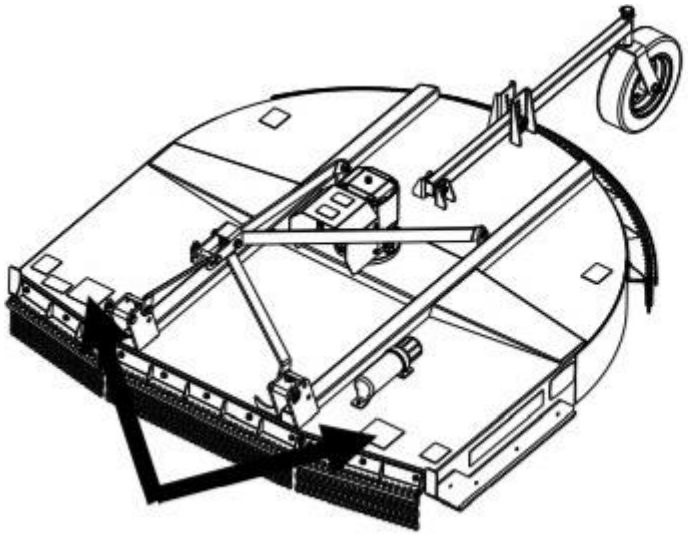
- Escaping fluid under pressure can penetrate the skin causing severe injury.
- Avoid the hazard by relieving pressure before disconnecting hydraulic lines or performing work on the system.
- Ensure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Use a piece of paper or cardboard, NOT BODY PARTS, to check for suspected leaks.
- Wear protective gloves and safety glasses or goggles when working with hydraulic systems.
- If an accident occurs, see a doctor immediately. Remember, any fluid injected into the skin must be treated within a few hours, or gangrene may result

TIRE SAFETY

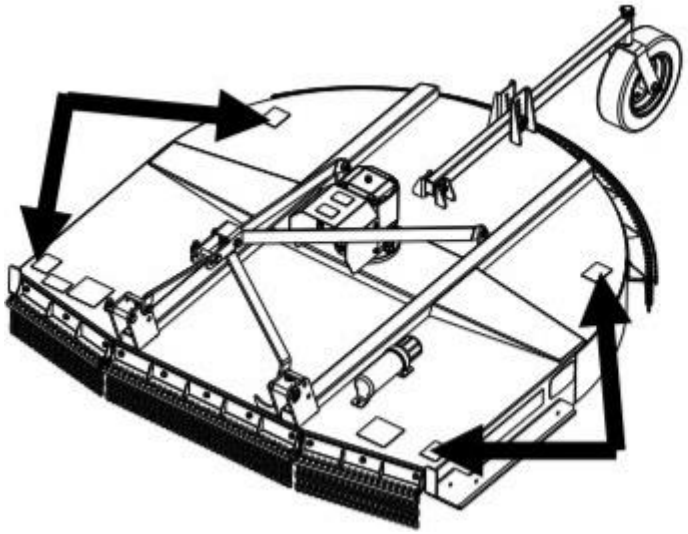
- Tire changing can be dangerous, and trained personnel should be the only ones using correct tools and equipment.
- When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand to one side and NOT in front of or over the tire assembly. Use a safety cage if available.
- When removing and installing wheels, use wheel handling equipment adequate for the weight involved.
-

SAFETY LABELTS

Your rotary cutter comes equipped with all safety labels in place. They were designed tohelp you safely operate your implement. Read and follow the directions.

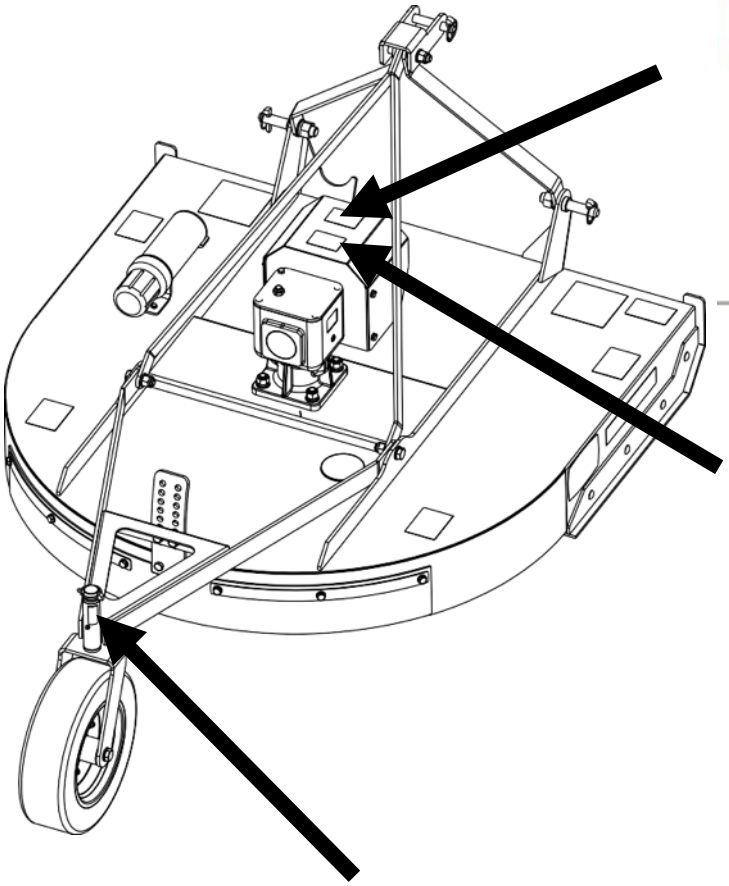


Warning



Danger: Keep hands and feet away

SAFETY LABELTS



Caution: 540 RPM PTO speed

Caution: Fill gearbox with SAE 90gear lube

This shows the grease position.

INTRODUCTION

APPLICATION

TITAN Pro Series Rotary cutters are ideal for clearing grass, weeds, and light brush. These cutters offer fast, clean, dependable mowing, and have been extensively tested to ensure operating safety. High blade tip speeds assure a clean cut in a variety of field conditions. The standard stump jumper slides over stumps, rocks, and debris and safety guards keep you up and running. This Rotary cutter is adapted for standard Category 1 – three-point hitch or Quick-Hitch system mounting. It's recommended to equip a slip clutch PTO shaft.

SECTION 1: ASSEMBLY AND SET-UP

TRACTOR REQUIREMENTS

Tractor horsepower should be within the range noted below. Tractors outside the horsepower range must not be used. Must be using a minimum of 65 hp when operating at maximum capability. The lower 3-Point arms must be stabilized to prevent side to side movement. Most tractors have sway blocks or adjustable chains for this purpose.

WARNING

To avoid serious injury or death:
Lightweight tractors with rear attached implements may need weights added to the front tomaintain steering control.
Consult your tractor Operator's Manual to determine proper weight requirements and maximum weight limitations.

PACKING DESCRIPTION

1. REMOVE AND CHECK

Remove the packing and check goods to if there are any defects or part omission.

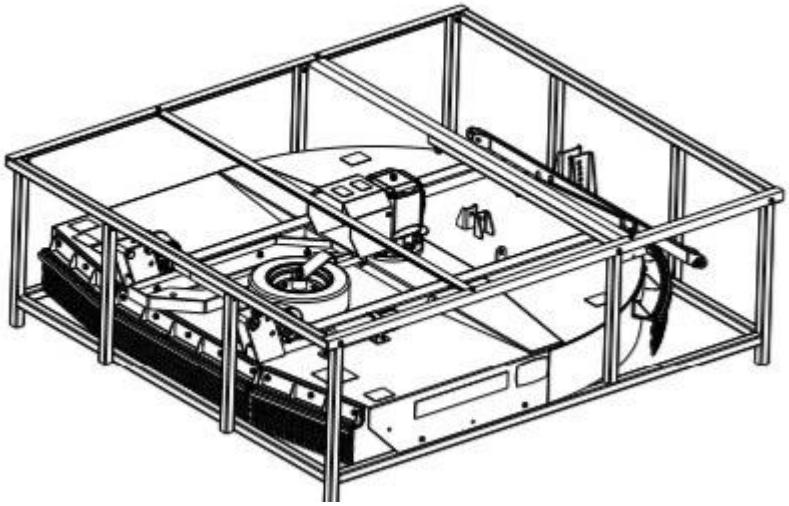


***Figure 1-1**: Your New PRO Rotary Cutter as it is shipped to You*

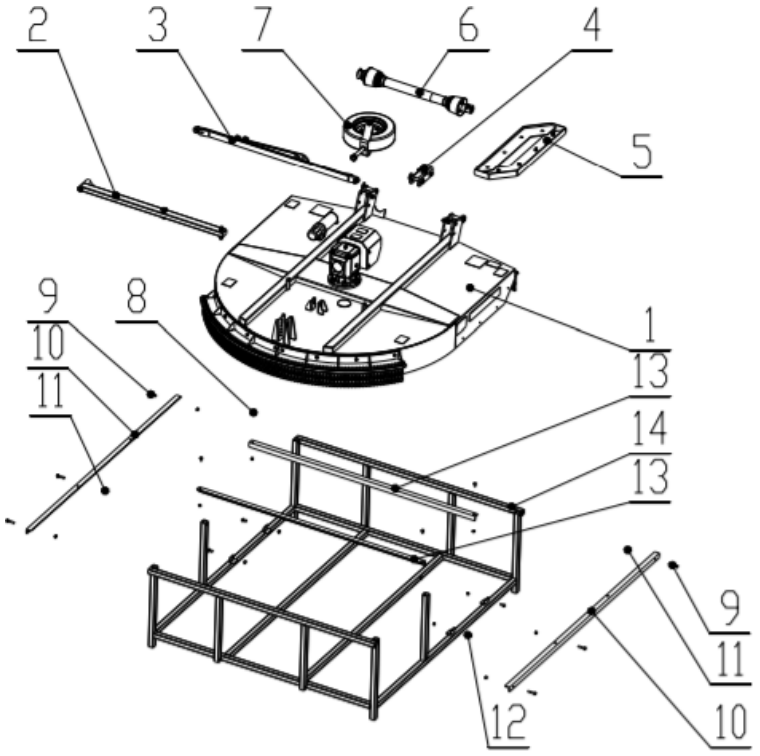


***Figure 1-2**: The PRORC cutter and Accessory in Package*

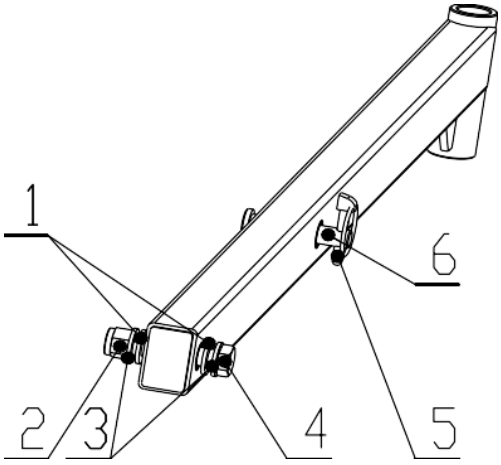
2. PACKING LIST

The detailed packing list of the mower and accessory as the following table 1-1.

ITEM	DESCRIPTION	QTY	PACKAGE FORM
(1)	MAIN BODY	1	NONE
(2)	WHEEL TIRE ASSEMBLY AND FITTINGS	1	BUBBLE FILM
(3)	FRONT AND REAR BRACES	1	BUBBLE FILM
(4)	PIVOTING UPPER HITCH-BLACK AND FITTINGS	1	BUBBLE FILM
(5)	R&L SKUD WELDMENT AND FITTING	1	BUBBLE FILM
(6)	DRIVELINE SHAFT WITH CLUTCH	1	BUBBLE FILM
(7)	WHEEL TIRE ASSEMBLY AND FITTING	1	BUBBLE FILM
(8)	BOLT M10*20	4	BUBBLE FILM
(9)	BOLT M10*55	6	CRATE ATTACHMENT
(10)	REMOVABLE ANGLE STEEL	2	CRATE ATTACHMENT
(11)	LOCK NUT M10	14	CRATE ATTACHMENT
(12)	BOLT M10*20	4	CRATE ATTACHMENT
(13)	REMOVABE ANGLE STEEL SUPPORT	2	CRATE ATTACHMENT
(14)	IRON CRATE	1	CRATE ATTACHMENT

***Table 1-1**: Packing List of The PRO Rotary Cutter and Accessory*

The detailed description of Wheel Frame Weldment And Fittings



ITEM	DESCRIPTION	QTY
(1)	NYLON WASHER 16	2
(2)	LOCK NUT M16	1
(3)	PLAIN WASHER 16	2
(4)	BOLT M16*90	1
(5)	SAFETY LOCK PIN 8*45	1
(6)	NYLON WASHER 16	2

***1-3**: Wheel Frame Weldment And Fittings*

The detailed description of Front and Rear Braces

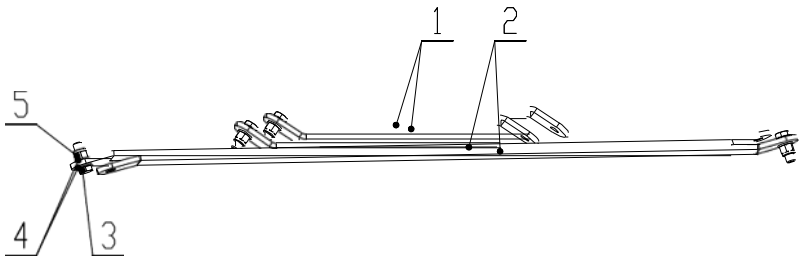
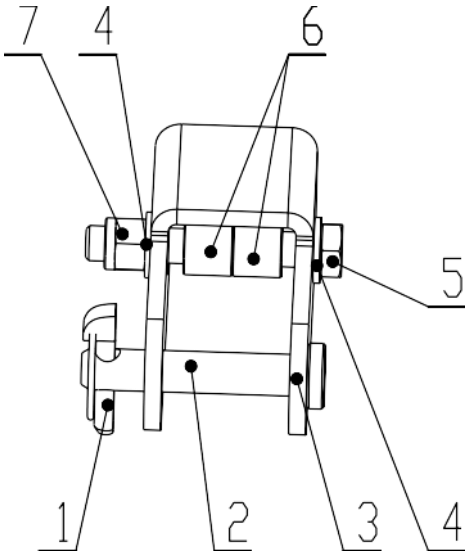


***Figure 1-4**: Front and Rear Braces*

ITEM	DESCRIPTION	QTY
(1)	FRONT BRACE	2
(2)	REAR BRANCE	2
(3)	BOLT M16*50	4
(4)	PLAIN WASHER 16	8
(5)	LOCKNUT M16	4

***Table 1-3**: Front and Rear Braces*

The detailed description of Pivoting Upper Hitch-Black And Fittings



ITEM	DESCRIPTION	QTY
(1)	SAFETY LOCK PIN 11*50	1
(2)	HITCH PIN – UPPER	1
(3)	PIVOTING UPPER HITCH – BLACK	1
(4)	PLAIN WASHER 16	2
(5)	BOLT M16*110	1
(6)	SPACER	2
(7)	LOCKNUT M16	1

***Figure 1-4**: Pivoting Upper Hitch-Black and Fittings*

The detailed description of R & L SKid Weldment And Fittings

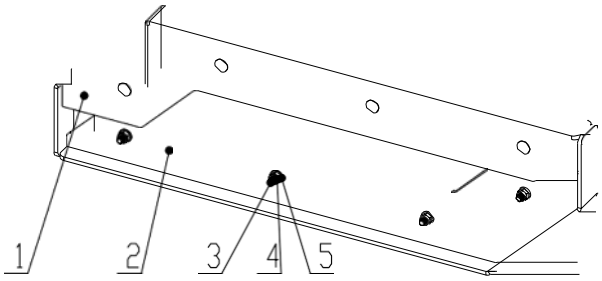
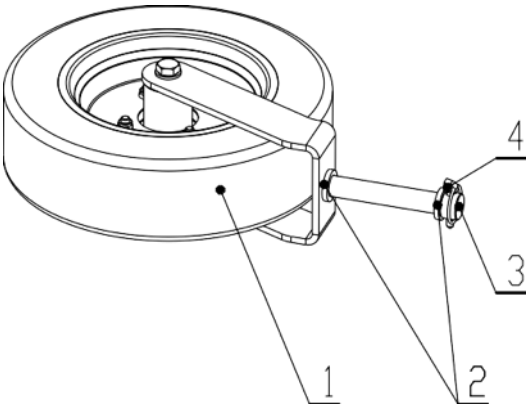


***Figure 1-5**: R & L Skid Weldment and Fittings*

ITEM	DESCRIPTION	QTY
(1)	SKID WELDMENT - R	1
(2)	SKID WELDMENT - L	1
(3)	RHSNB M10*25 GR10.9	8
(4)	PLAIN WASHER 10	8
(5)	LOCK NUT M10	8

***Table 1-5**: R & L Skid Weldment and Fittings*

The detailed description of Wheel Tire Assembly and Fittings



ITEM	DESCRIPTION	QTY
(1)	RUBBER TIRE ASSEMBLY	1
(2)	SPACER H=6	2
(3)	CAP SHAFT MOUNT	1
(4)	SAFETY LOCK PIN 8*45	1

***Figure 1-6**: Wheel Tire Assembly and Fittings*

ASSEMBLY INSTRUCTIONS

The assembly instruction will guide you to finish the final assembly of your new standard rotary cutter.

TOOL REQUIRED

- 1/2" Ratchet Wrench with 17mm and 24mm sleeves
- 17-19 spanner, 22-24 Spanner

TORQUE APPLICATION

- Refer to bolt torque in Section 7 Appendix.

INSTALLATION

STEP 1: INSTALLING FRONT & REAR BRACES, PIVOTING UPPER HITCH-BLACK AND FITTINGS

1. Remove the packaging of front & Rear braces and pivoting upper hitch-black and fittings.
2. Installing front & rear braces, pivoting upper hitch-black, and fittings onto main body of the rotary cutter according to the figure 1-8.
3. Tighten item 2 completely. Tighten item 8, but make sure item 7 can rotate freely.

ITEM 1 – Main body of the rotary cutter
ITEM 2 – Bolt M16x50 (4pcs)
ITEM 3 – Plain washer 16 (10pcs)
ITEM 4 – Locknut M16 (5pcs)
ITEM 5 – Front brace (2pcs)
ITEM 6 – Spacer (2pcs)
ITEM 7 –Pivoting upper hitch-black (1pcs)
ITEM 8 – Bolt M16x110 (1pcs)
ITEM 9 – Rear brace (2pcs)

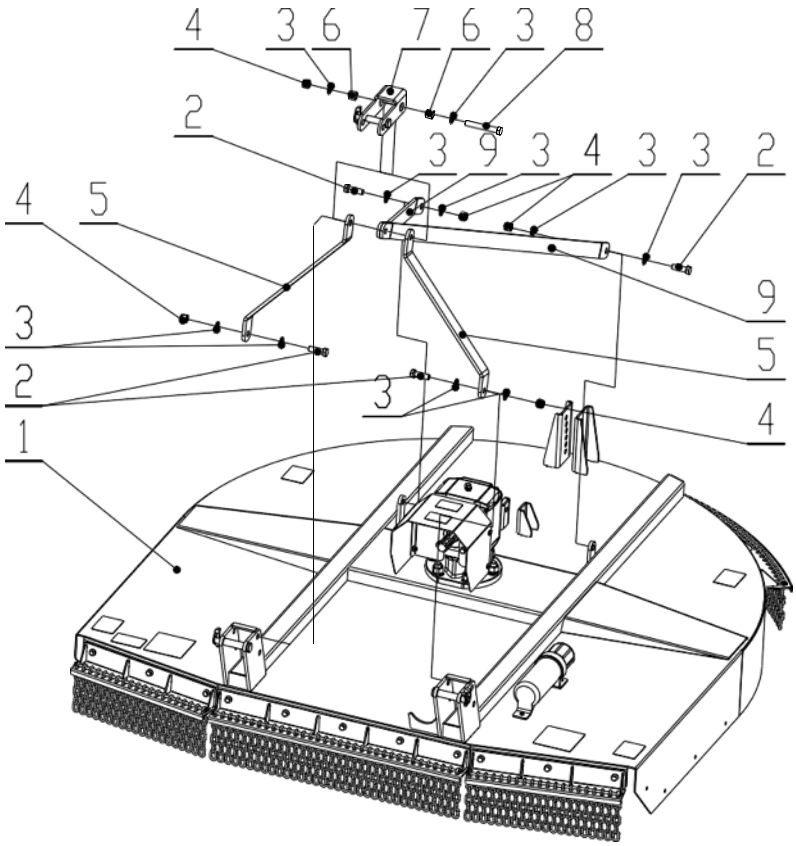


FIGURE 1-7: *INSTALLING Braces, Pivoting Upper Hitch-Black, And Fitting*

STEP 2: INSTALLING WHEEL FRAME WELDMENT AND FITTINGS

- Remove the packaging of the wheel frame weldment and fittings.
- Installing wheel frame weldment and fitting onto main body of the rotary cutter according to figure 9
- Tighten item 8, but make sure item 7 can rotate freely when the cutting height needs to be adjusted.

ITEM 1 – Main body of the rotary cutter
ITEM 2 – Plain washer 16 (2pcs)
ITEM 3 – Bolt M16x90 (1pcs)
ITEM 4 – Nylon washer 16 (2pcs)
ITEM 5 –Wheel height adjusting pin (1pcs)
ITEM 6 – Safety lock pin φ8x45 (1pcs)
ITEM 7 –Wheel frame weldment (1pcs)
ITEM 8 – Locknut M16 (1pcs)

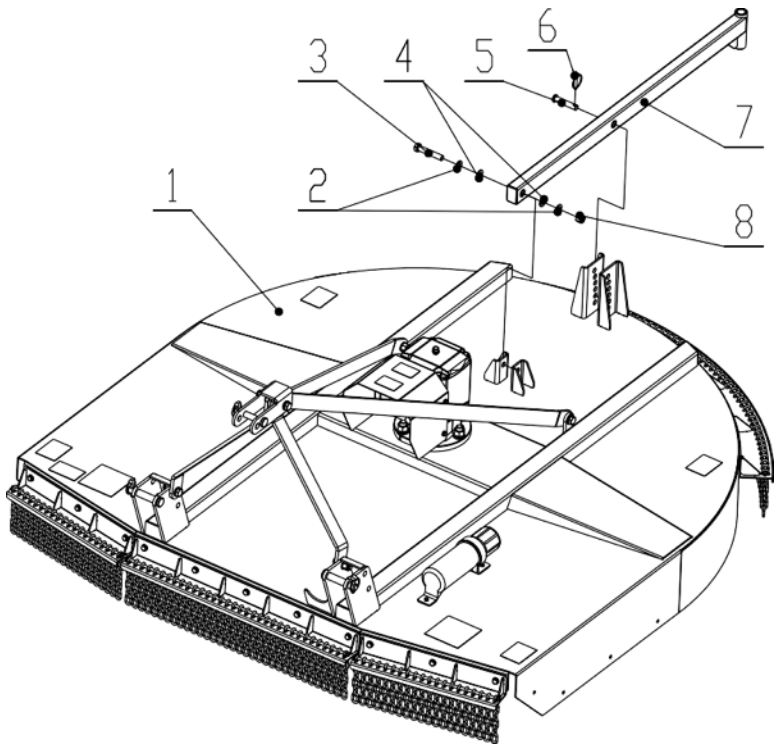


***Figure 1-9**: Installing R&L Skid Weldment and Fittings*

STEP 3: INSTALLING R & L SKID WELDMENT AND FITTINGS

- Remove the packaging of R & L Sid Weldment and Fittings
- Align lower link arms of tractor to hitch lower hitch pos into lower ball swivels. Attach tractor top link arm to the pivoting upper hitch-black with hitch pin upper supplied.
- Secure with safety lock pin
- Raise rotary cutter from the ground
- Install R & L Skid Weldment onto the Rotary Cutter
- Tighten Locknuts completely

ITEM 1 – RHSNB M10x25 GR10.9 (8pcs)
ITEM 2 – Skid weldment – L (1pcs)
ITEM 3 – Plain washer 10 (8pcs)
ITEM 4 – Locknut M10 (8pcs)
ITEM 5 – Main body of the rotary cutter
ITEM 6 – Skid weldment – R (1pcs)

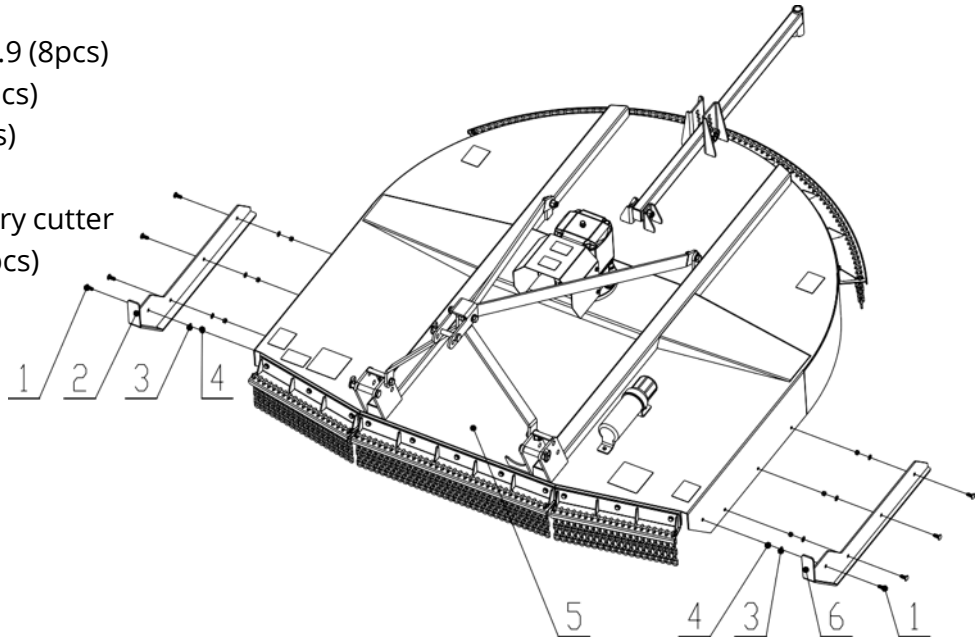


Figure 1-10: *Installing R & L Skid Weldment And Fittings*

STEP 4: INSTALLING WHEEL TIRE ASSEMBLY AND FITTINGS

- Remove the packaging of the wheel tire assembly and fittings
- Remove item 3 and item 4, and one piece of item 5 from the wheel tire assembly
- Insert the pivot shaft of the wheel tire assembly into the bushing of the wheel frame.

ITEM 1 – Main body of the rotary cutter
ITEM 2 – Wheel frame weldment
ITEM 3 – Safety lock pin φ8x45 (1pcs)
ITEM 4 – Cap shaft mount (1pcs)
ITEM 5 – Spacer H=6 (2pcs)

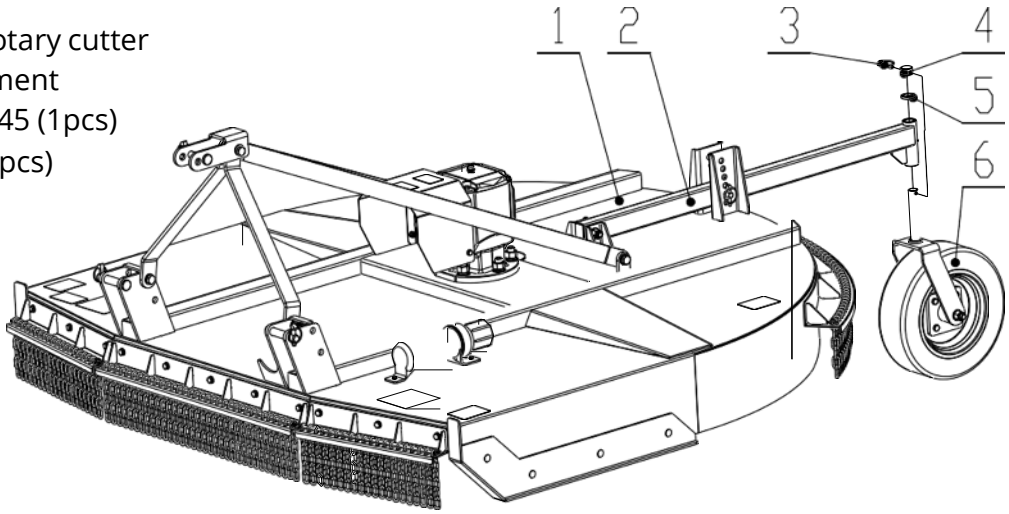


Figure 1-10: *Installing Wheel Tire Assembly and Fittings*

WARNING

SAE EP 90W Gear oil must be filled before you finish final assembly and start your first use. Overfilling or under filling gear oil may cause gearbox seixing or damage.

4. GEAR OIL FILLING

Check oil level in gearbox by removing the cap located on the side of the gearbox. Oil should be level with middle side of plug hole. Add necessary oil by removing top cap andside plug. Add oil until it flows from middle side plug hole.

ITEM 1 – Cap for inlet gearbox oil
ITEM 2 – Gearbox
ITEM 3 – Plug for gearbox oil level

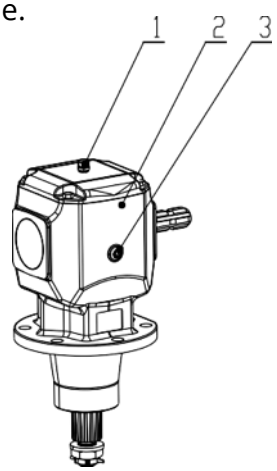


Figure 1-11*: Gearbox construction*

DANGER

To avoid serious injury or death:
A crushing hazard exists while hooking-up and unhooking the implement. Keep people and animals away while backing-up to the implement or pulling away from the implement. Do not operate hydraulic controls while a person or animal is directly behind the power machine or near the implement.

WARNING

To avoid serious injury or death:
Lightweight tractors with rear attached implements may need weights added to the front to maintain steering control.
Consult your tractor Operator's Manual to determine proper weight requirements and maximum weight limitations.

Refer to Figure 1-13:

1. Slowly back tractor up to rotary cutter while using tractor's 3-Point hydraulic control lever to align lower lift arm hitch holes with cutter hitch pins. (Item 2)
2. Always Disengage power take-off, engage tractor park brake, shut tractor engine off, and remove switch key before dismounting from tractor.
3. Slide lower 3-point lift arms onto cutter hitch pins (Item 2). Secure hitch pins with safety lock pins (Item1).
4. Connect hitch hole in top center 3-Point link to upper clevis hitch with top hitch pin (Item 4) and safety lock pins (Item1).
5. Ensure that the lower hitch arms are locked to prevent excessive side movement.
6. Return to tractor and slowly raise and lower implement carefully to ensure drawbar tires, and other equipment on the tractor do not contact cutter frame and driveline. Move or remove drawbar as needed.
7. Manually adjust one of the two lower 3-point lift arms up or down to level the rotary cutter from left to right. Final adjustments will be made later during "Deck leveling & Cutting Height" on page 21.
8. The arm lift rods on your tractor's 3-point lift arm should be adjusted to allow for lateral float. Please consult your tractor's manual for adjusting instructions.

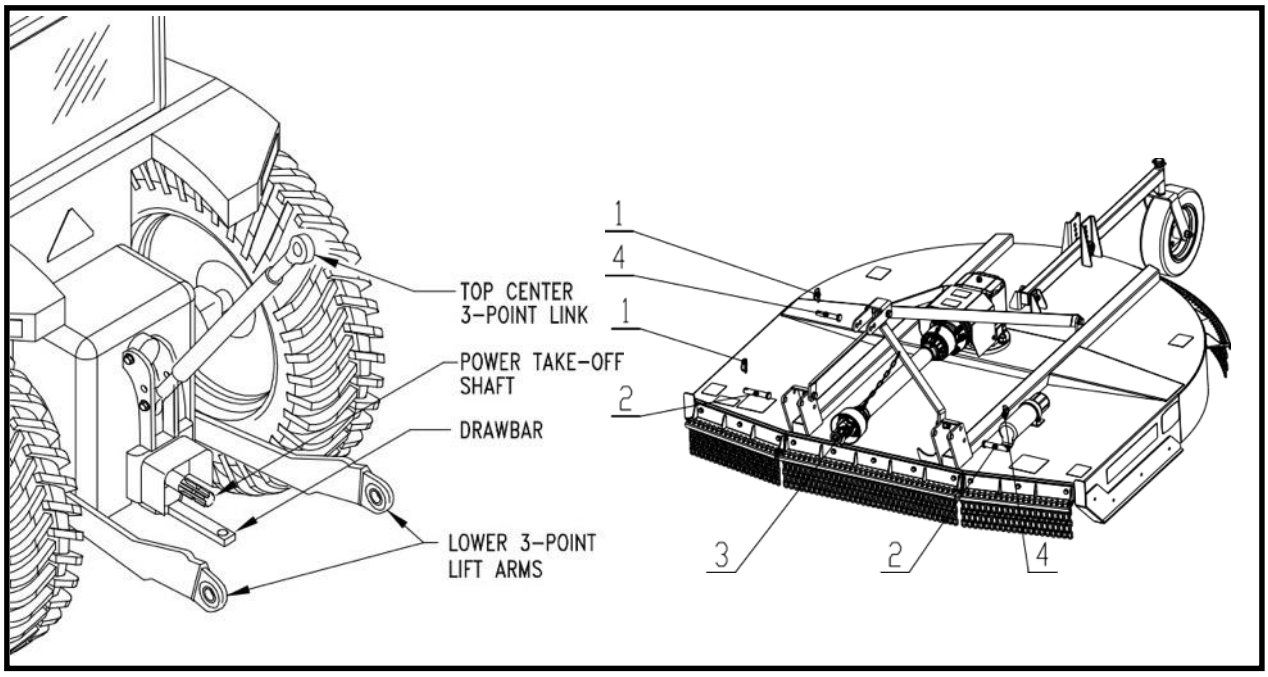


***Figure 1-13**: Tractor Hook-Up*

DRIVELINE HOOK-UP

DANGER

To avoid serious injury or death:

- Tractor power take-off shaft shield, driveline shields, and implement input shield must be installed and in good working condition to avoid driveline entanglement and projectiles dislodging of the driveline.
- Do not engage power take-off while hooking-up or unhooking the driveline, or while someone is standing near the driveline. A person's body and/or clothing can become entangled in the driveline.
- Do not use a power take-off adapter. The adapter will increase strain on the tractor's power take-off shaft causing possible damage to shaft and driveline. It will also defeat the purpose of the tractor's power take-off shield.
- Make sure driveline yokes are securely fastened at each end. A loose yoke can work free allowing the driveline to rotate uncontrollably causing implement damage and bodily injury or death to anyone nearby.

WARNING

To avoid serious injury or death:

- Always follow **"Tractor Shutdown Procedure"** provided in this manual before dismounting the tractor.
- Check driveline when lowering implement to make sure it does not interfere with the tractor drawbar at maximum depth. If needed, shut tractor off and move or remove drawbar to prevent driveline damage.

IMPORTANT:
An additional driveline may be required if implement is attached to more than one tractor or if a Quick Hitch is used.
Drivelines with friction clutches must go through a "run-in" prior to initial use and after long periods of inactivity. For detailed instructions, see **"Slip-Clutch Protected Driveline"** on page 30. Check driveline minimum collapsible length before completing **"Driveline Hook-Up"** on page 17. Structural damage to the tractor and implement can occur if this check is not made. Refer to **"Check Driveline Collapsible Length"** on page 18.

1. If driveline collapsible length has not been checked, go to "**Check Driveline Collapsible Length**" on page 18. Otherwise, continue with step 2.
2. Park tractor and implement on a level surface.
3. Shut tractor down before dismounting. Refer to "**Tractor Shut down Procedure**" on page 26.
4. If tractor drawbar interferes with the driveline during hook-up, disconnect driveline and move drawbar forward, to the side, or remove.
5. Collapse driveline (Item3) by pushing tractor end of driveline toward the cutter gearbox.
6. Push in on push pin on the driveline and slide outer driveline universal joint over tractor power take-off shaft.
7. Release push pin on the driveline and continue to slide universal joint over tractor power take-off shaft until push pin releases and pops up.
8. Pull on driveline yokes at the tractor and implement end to make sure they are secured to the tractor power take-off shaft and implement gearbox shaft.
9. The tractor's lower 3-point arms should be adjusted for lateral float. Please consult your tractor's manual.
10. Continue with **"Check Driveline interference"** on Page 20.

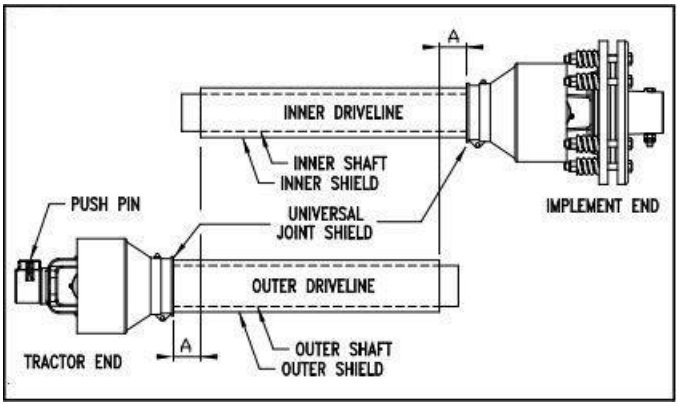
CHECK DRIVELINE COLLAPSIBLE LENGTH
Refer to Figure 1-14:

IMPORTANT:
Two small chains are supplied with the driveline to keep driveline shields from rotating. These chains must be attached to the outer and inner driveline shields and attach to the rotary cutter & tractor.

A driveline that is too long will bottom out causing structural damage to the tractor and mower. Always check driveline collapsible length during initial setup and when connecting to a different tractor. More than one driveline may be required to fit all applications.

The power take-off shaft and implement input shaft must be aligned and level with each other when checking driveline minimum length. A driveline that is too long can damage tractor and implement.

1. With driveline attached only to the implement, remove outer driveline (tractor end)from inner driveline to separate the two profiles.
2. Park tractor and implement on a level surface.
3. Raise implement until gearbox input shaft is level with tractor power take-off shaft. Securely block implement at this height to keep until from lowering.
4. Shut tractor down without removing support blocks. See "Tractor **Shutdown Procedure**" on page 26.
5. Attach outer driveline to the tractor's power take-off shaft. Refer to steps 5-8 under "**Driveline Hook-Up**" on page 17.
6. Hold inner and outer drivelines parallel to each other, or as close to parallel as possible. If dimension "A" is greater thanor equal to 1", then skip to "Reassemble Driveline" on page 20. Otherwise continue with step 7.



a) Measure from end of inner shield to scribed mark ("X" dimension) and record.
b) Cutter off inner shield at the mark. Cut same amount off the inner shaft ("X1" dimension).
c) 10. Cut off non-yoke end of outer driveline as follows:
d) Measure from end of outer shield to scribed mark ("Y" dimension) and record.
e) Cutter off outer shield at the mark.

SHORTEN DRIVELINE LENGTH

Refer to Figure 1-14:

7. If dimension "A" is less than 1", shorten driveline as follows:
    a. Measure 1" ("B1" dimension) back from outer driveline shield and make a mark at this location on the inner driveline shield.
    b. Measure 1" ("B2" dimension) back from the inner driveline shield and make a mark at this location on the outer driveline shield.
8. Remove outer driveline from the tractor power take-off shaft and inner driveline from the implement's gearbox shaft.
9. Cut off non-yoke end of inner driveline as follows:

REASSEMBLE DRIVELINE

Refer to Figure 1-14:

1. Apply multi-purpose grease to the inside of the outer shaft and reassemble the driveline.
2. Reattach driveline to tractor power take- off shaft and gearbox shaft, Refer to "Driveline Hook-Up" on page 17.
3. Continue with "Check Driveline interference" on page 20.

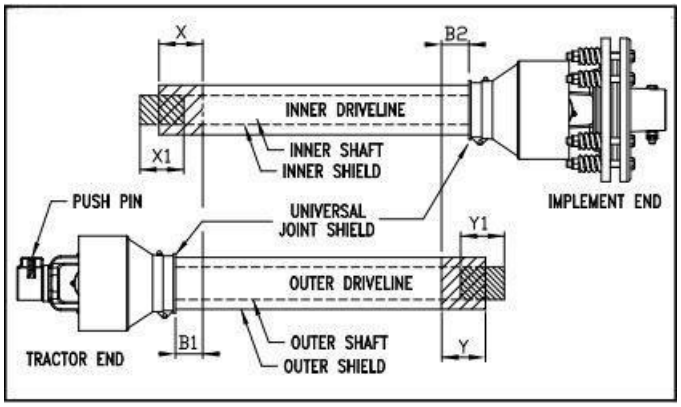


Figure 1-14: Driveline Shortening CHECK

DRIVELINE INTERFERENCE

Refer to Figure 1-15:

WARNING

To avoid serious injury or death:
A rotating driveline must not exceed an angle of 25 degrees up or down, and never engage a driveline while at an angle exceeding 25 degrees up or down. The driveline can break and send projectiles.

1. Start tractor and raise implement slightly off the support blocks used to "**Check Driveline Collapsible Length".** Drive forward until the implement is clear of the support blocks.
2. Slowly and carefully lower and raise the implement to ensure drawbar, tires, and other equipment on the tractor do not contact the implement's frame. If there is an interference:
    a. Back implement over the support blocks and lower it onto the blocks.
    b. Shut tractor down before dismounting. Refer to **"Tractor Shutdown Procedure"** on page 26.
    c. Move or remove drawbar if interferes with the implement and make any other necessary corrections
    d. Repeat steps 1-2 to verify the implement does not interfere with the tractor.
3. Start tractor, raise implement fully up. Back implement over the support blocks. Do not lower implement onto the support locks.
4. Without changing the 3-point lift height, shut tractor down using **"Tractor Shutdown Procedure"** on page 26.
5. Check to make sure driveline does not exceed 25°above horizontal.
6. Start tractor, raise implement slightly, and drive forward enough to clear the support blocks.
7. Lower implement to ground and shut tractor down using "**Tractor Shutdown Procedure**" on page 26.

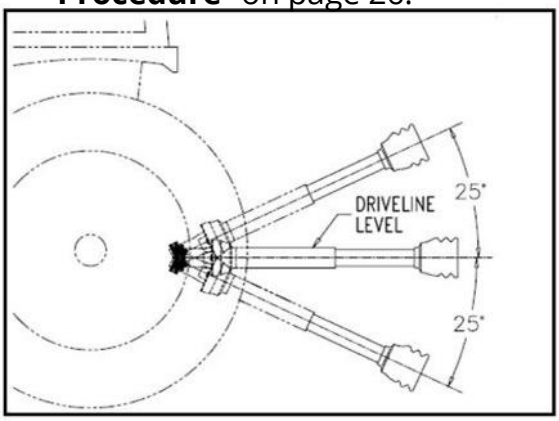


***Figure 1-15**: Maximum PTO driveline movement range during operation*

SECTION 2: ADJUSTMENTS

DECK LEVELING & CUTTING HEIGHT

There are 4 primary adjustments that should be made prior to actual field operations:

- Deck leveling Left to Right
- Cutting Height Adjustment
- Center 3-Point Link Adjustment
- Tailwheel Height Adjustment

Proper adjustment of each of these items will provide for higher efficiency, improved cutting performance, and longer blade life.

The following tools will be needed:

- Pliable tape measure
- Spirit or carpenter's level
- Open and or Hex end wrench or socket set
- Protective gloves

WARNING

To avoid serious injury or death:
Always disengage power take-off, put tractor in park or set park brake, shut tractor engine off, remove ignition key, and wait for blades to come to a complete stop before dismounting tractor.

DECK LEVELING LEFT TO RIGHT

1. Locate tractor with Rotary Cutter on a flat, lever surface.
2. Use tractor's hydraulic 3-point control lever to lower cutter until the tailwheel contacts the ground surface.
3. Place a level on the front of the cutter deck. Manually adjust either one or both tractor's lower 3-point arms to level the deck from left to right. Some tractors have only a single adjusting arm.

CUTTING HEIGHT ADJUSTMENT

WARNING

To avoid serious injury or death:
Avoid direct contact with cutter blades by wearing a pair of gloves. Cutter blades have sharp edges and burrs that can cause injuries.

IMPORTANT:
The front blade tip should be lower than rear blade tip by approximately 1". The cutter is subject to continuous material flow under the deck if the rear blade is at the same height or lower than the front blade causing horsepower loss, grass clumps, blade wear, and frequent blade sharpening.

1. Using tractor's 3-point hydraulic control, raise or lower than the 3-point arms until the front of the deck is slightly lower than the rear of the deck.
2. The top center link typically is adjusted with the upper clevis pin vertically above lower than hitch pins. As show in Figure 2-1.
3. With gloves on, carefully rotate each blade tip to the position shown in figure 2-1.
4. Measure distance from cutting tip of blade to ground surface. This distance is the cutting height.
5. If desired cutting height cannot be obtained by adjusting the lower 3-point arms, then readjust tailwheel height. See **"Tailwheel Height Adjustment"** on page 22.
6. Repeat steps 1 to 5 until desired cutting height is achieved.
7. Set tractor's 3-point hydraulic control stop at this height.

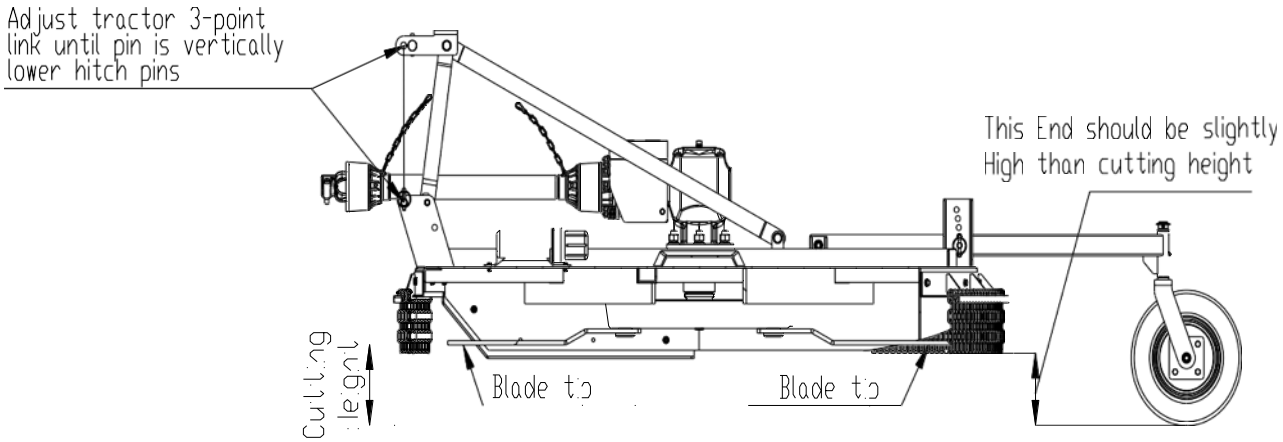


***Figure 2-1**: Cutting Height*

CENTER 3-POINT LINK ADJUSTMENT

1. Lower cutter deck to the nominal cutting height.

Note: Customer may adjust center 3-point link to his or her preference. Lengthening center 3-point link allows more movement while going over raised surfaces.
Shortening the link allows more movement while crossing over ditches. Also, shortening center link allows the cutter to be carried higher while traveling. Never lengthen center link to where the cutter is carried too low.

2. Typically, the center 3-point link is adjusted so that the upper 3-point clevis pin is straight above the lower 3-point hitch pins. This arrangement allows for optimum ground contour following performances.
3. Adjustment on center 3-point link can be made depending on customer's preference.

TAILWHEEL HEIGHT ADJUSTMENT

Refer to Figure 1-8 on page 13:

The deck slope should be adjusted so that the cutting blades are slightly lower than at the front of the cutter than at the back. If they are not, the tailwheel must be adjusted up or down until the deck slope is correct.

1. Make sure instructions for setting the "Cutting Height Adjustment" have been followed before continuing with adjusting tailwheel height below.
2. Use tractor's 3-point hydraulic control to lift tailwheel off the ground.
3. Remove Hex bolts M12x40 (#9), plain washers 12 (#8) and lock nuts M12 (#7). Adjustment
4. tailwheel as follows:
    a. *To lower blade height at the rear, raise tailwheel.*
    b. *To raise blade height at the rear, lower tailwheel.*
5. With tailwheel adjusted to the correct position, reinstall Hex bolts M12x40 (#9), plain washers 12 (#8) and lock nuts M12(#7). Draw locknut up snug, do not tighten until after rechecking deck cutting height.
6. Recheck deck cutting height. Refer to instructions for adjusting the **"Cutting Height Adjustment"** on page 21.
7. After the deck cutting height and tailwheel height are adjusted correctly, tighten locknuts M12 (#7) to the correct torque.

SECTION 3: OPERATING INSTRUCTIONS

OPERATING CHECKLIST

Hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training involved in the operation, transport, storage, and maintenance of the Rotary Cutter.

Perform the following inspection before using your Rotary Cutter.

OPERATING CHECK LIST

CHECK	DESCRIPTION	PAGE
	Make sure all guards and shields are in place. Refer to "Important Safety Information"	**2**
	Read & follow hook-up & preparation instructions. Refer to "Section 1: Assembly and Set-up".	**7**
	Read and make all required adjustments, Refer to "Section 2: Adjustments"	**21**
	Lubricate cutter and driveline as needed. Refer to "Maintenance & Lubrication"	**30**
	Make sure all gearboxes are properly lubricated and that all oil plugs have been tightened properly.	**36**
	Check cutter initially and periodically for loose bolts and pins. Refer to "Bolt Torque".	**40**

INSPECTION OF TRACTOR & CUTTER

Make the following inspections with cutter attached to a tractor, power take-off disengaged, and cutter blades stopped.

1. Park tractor and cutter on a level surface.
2. Disengage power take-off, place gear selector in park, set park brake, shut tractor off, and remove switch key. Make sure cutter blades have come to a complete stop before dismounting from tractor.
3. Inspect tractor safety equipment to make sure it is installed and in good working condition.
4. Inspect cutter safety equipment to make sure it is installed and in good working condition.
5. Check driveline to make certain it is securely connected to the tractor power

Take-off shaft and cutter gearbox shaft.

6. Check driveline guards to make certain they are in good condition an in place. Carefully raise and lower implement to ensure that the drawbar, tires, and otherequipment on the tractor do not contact cutter frame or driveline.
7. With cutter resting on solid supports, power take-off disengaged, and blade rotation completely stopped:

- Check for and remove foreign objects wrapped around blade spindles.
- Check for nicked, bent, broken, and worncutting blade. Replace or sharpen bladesas required. Refer to "**Cutter Blade Maintenance**" on page 32.

9. Remove solid supports from under thedeck.
10. Verify cutter is set at the correct cuttingheight. See "**Deck Leveling & CuttingHeight**" on page 21.

The remaining inspections are made by engaging the power take-off to check for vibrations.

WARNING

- *To avoid serious injury or death: Stop power take-off immediately if vibration continues after a few revolutions during start-up and anytime thereafter. Wait for allcomponents to come to a complete stop before dismounting from tractor to check for probable causes. Make necessary repairs and adjustments before continuing.*
- *Some tractors are equipped with two powertake-off speeds. Be certain your tractor's power take-off shaft is set-up to operate at 540 rpm. Do not exceed 540 rpm power take-off speed or equipment breakage may result.*

11. Start tractor, set throttle to idle or slightly above idle, and slowly engage power take-off, initial start-up vibrationis normal and should stop after a few revolutions. Stop power take-off rotation immediately if vibration continues.
12. Once the cutter is running smoothly, increase tractor power take-off speed to540 rpm. Stop power take-off rotation immediately if vibration occurs.
13. Investigate cause of vibration and makerepairs before putting cutter back into service.

SAFETY INFORMATION

WARNING

To avoid serious injury or death:

- *Never place hands or feet under the deck or attempt to adjust to the cutter with power take-off engaged. Cutter bladesrotating at high speeds cannot be seen andare located close to the deck sides.*
- *Do not engage power take-off while hooking-up or unhooking the driveline, or while someone is standing near the driveline.A person's body and/or clothing can becomeentangled in the driveline.*
- *Do not use a power take-off adapter. The adapter will increase strain on the tractor'spower take-off shaft causing possible damage to shaft and driveline. It will also defeat the purpose of the tractor's power take-off shield.*
- *Rotary Cutters can discharge objects at high speeds; therefore, the use of front & rear safety guards is mandatory with this cutter. Stop blade rotation if bystandersare in or around the area. It is recommended that a safety shield be placedbetween the operator and cutter on an open-air tractor.*
- *All guards and shields must be installed and in good working condition while operating the implement.*
- *Tractor power take-off shaft shield, driveline shields, and gearbox shaft shields must be installed and in good*

working condition to avoid driveline entanglement and projectilesflying off of the driveline.

- *Always disconnect driveline from power take- off shaft before servicing underside of cutter. The tractor can be started with power take-offengaged.*
- *Do not use cutter as a fan. Cutting blades are not properly designed or guarded for this use.*

WARNING

To avoid serious injury or death:

- *Do not operate and/or travel across inclines where tractor and/or implement can rollover. Consult your tractor's manual for acceptable inclines the tractor is capable of traveling across.*
- *Never carry riders on the implement or powermachine. Riders can obstruct the operator's view, interfere with controls, be pinched by moving components, become entangled in rotating components, struck by objects, thrown about, fall off and be run over, etc.*
- *A rotating driveline must not exceed an angle of 25 degrees up or down, and never engage adriveline while at an angle exceeding 25 degrees up or down. The driveline can break and send projectiles.*
- *Do not operate a broken or bent driveline. Such adriveline will break apart while rotating at high speeds and can cause serious injury or death.*
- *Always remove the implement from use until thedamaged driveline can be repaired or replaced.*
- *Always follow "**Tractor Shutdown Procedure**" provided in this manual before dismountingthe tractor.*
- *Always disengage power take-off before lifting cutter fully up. Never operate cutter inthe raised position. The cutter can dischargeobjects at high speeds.*
- *Do not use implement as a man lift or workplatform. It is not properly designed or guarded for this use.*
- *Perform scheduled maintenance. Check for loose hardware, missing parts, broken parts,structural cracks, and excessive wear. Make repairs before putting the implement back into service.*
- *Do not use implement to lift objects; to pull objects such as fence posts, stumps, etc.; or topush objects. The unit is not designed or guarded for these uses.*
- *Select a safe ground speed when transporting.Never travel at a speed which does not allow adequate control of steering and stopping, and never exceed 20 mph (32.2km/h) with attached equipment. Rough terrain requires aslower speed.*
- *Buildup of debris around moving componentsand gearboxes is a fire hazard. Keep rotating parts and gearboxes free from debris to avoid serious injury and property damage.*
- *Improper oil level can cause bearing failure and be a fire hazard. Maintain proper gearboxoil level to avoid serious injury and property damage.*
- *Do not exceed rated cutting capacity of yourcutter. See **specifications & capacities** for specified cutting capacity. Exceeding rated cutting capacity can damage drive components, cutter blades, and deck components.*

TRACTOR SHUT DOWN PROCEDURE

The following are basic tractor shutdown procedures. Follow these procedures and any additional shutdown procedures provided in your tractor Operator's Manual before leaving the operator's seat.

1. Reduce engine speed and disengage powertake-off if engaged.
2. Park tractor and implement on level, solidground.
3. Lower implement to ground or onto non-concrete support blocks.
4. Put tractor in park or set park brake, turn offengine, and remove switch key to prevent unauthorized starting.
5. Relieve all hydraulic pressure to auxiliaryhydraulic lines.
6. Wait for all components to come to a complete stop before leaving the operator'sseat.
7. Use steps, grab-handles and anti-slip surface when stepping on and off the tractor.

TRANSPORTING

WARNING

To avoid serious injury or death:

- *When traveling on roadways, travel in such a way that other vehicles may pass you safely. Always use LED lights, clean reflectors, and a slow-moving vehicle sign that is visible from theback to warn operators in other vehicles of your presence. Always comply with all federal, state,and local laws.*
- *Always disengage power take-off and wait fordriveline to stop rotating before raising implement to transport position.*

1. Make sure driveline does not contact tractoror cutter when raising cutter to transport position.
2. Reduce tractor ground speed when turning and leave enough clearance so cutterdoes not contact obstacles such as buildings, trees, or fences.
3. Limit transport speed to 20 mph. Transport only with a farm tractor of sufficient size and horsepower.
4. When traveling on roadways, transport in such a way that faster moving vehicles may pass you safely.
5. Shift tractor to a lower gear when traveling over rough or hilly terrain.

BLADE ENGAGEMENT & DISENGAGEMENT

Cutter blades can lock-up against each other during start-up and shut-down especially if the tractor's power take-off engagement is "INSTANT ON" and "INSTANT OFF". Follow blade engagement and blade disengagement instructions below will help eliminate blade lock up.

BLADE ENGAGEMENT

1. Increase throttle to a speed just enough to get the cutter started without stalling tractor while slowly engaging drivelines. Use tractor's power take-off soft start option if available.
2. Ensure that all power shafts are rotating and that the cutter is not vibrating excessively after ramping up to power take-off speed for at least 3 seconds. If excessive vibration continues after 3 seconds at full power take-off speed, disengage power take-off immediately, shut down tractor, and remove switch key.
3. Check blades for a lock-up situation. Block cutter deck up before working under the unit. Unlock blades, removesupport blocks, and repeat "**Blade Engagement**" instructions.

BLADE DISENGAGEMENT

1. Slowly decrease throttle speed until

engine idle speed is reached and then disengage power take-off.

2. Engage tractor park brake, shut tractorengine off and remove switch key. Stayon tractor until blades have come to a complete stop.

FIELD OPERATION

DANGER

To avoid serious injury or death:
Clear area to be cut of debris and other unforeseen removable objects before cutting.Mark non-removable hazards such as trees stumps, post stubs, protruding objects, rocks,drop-offs, holes, etc. with a visible flag.

IMPORTANT:
Maintain correct power take-off speed. Loss of power take-off speed will allow blades to swing back resulting in ragged, uneven cutting.Your cutter is equipped with free swinging cutting blades to reduce shock loads when striking obstacles. However, it is best to avoid striking obstacles to extend cutter and blade life.

NOTE:
Do not cut in wet conditions. Wet material will build up on the deck underside creating poor discharge, high wear, and additional horsepower.

Periodically disengage power take-off, turn off tractor, remove key & check for objects wrapped around blade spindle. Block deck up before removing objects.

*Frequently inspect cutter for loose bolts and nuts. Tighten all loose hardware as indicated in the "**Bolt Torque**" on page 40.*

1. Thoroughly inspect area to be cut fordebris and unforeseen objects. Markany potential hazards.
2. Follow "**Blade Engagement**" instructions on page 26 to start cutterblades turning.
3. Optimum ground speed depends on density of material being cut, horsepower rating of tractor, and terrain.Always operate tractor at cutter's full rated power take-off speed in a gear range that allows the cutter to make a smooth cut without lugging tractor down, usually between 2 to 5 mph.
4. Stop traveling and disengage power take-off after the first 50 feet to cutting.Check cutter levelness and cutting height to make certain it is adjusted properly.
5. Do not engage power take-off with 3-point cutter fully raised.
6. Periodically disengage power take-off, shut down tractor, remove key, and check for foreign objects wrapped around the blades spindle. Block cutterdeck up before removing objects.
7. Frequently inspect cutter for loose boltsand nuts. Tighten all loose bolts and nuts as indicated in the " **Bolt Torque**" on page 40.
8. For additional information, see "**General Operating Instructions**" onpage 28.

UNHOOK ROTARY CUTTER

Unhook rotary cutter from tractor asfollows:

1. See "Long-Term Storage" on page 34 if cutter is to be stored for a long time.
2. Park on a level solid surface and lower deck to ground level or onto support blocks.
3. Engage tractor park brake, shut tractor engine off, and remove switch key. Stay on tractor until blades have come to a complete stop.
4. Disconnect driveline and safety chain from tractor.
5. Unhook 3-point hitch from tractor and drive tractor forward several feet.
6. Reinstall hitch pins, linchpins, and safety lock pins in cutter hitch for safe keeping.
7. Collapse driveline by pushing tractor end of driveline towards cutter gearbox.

8. Support collapsed driveline off the ground by rotating driveline hook holder under driveline and letting driveline rest in deck for storage.

GENERAL OPERATING INSTRUCTIONS

It is important that you have familiarized yourself withthe Operator's Manual, completed the Operator's Checklist, properly attached cutter to your tractor, made leveling adjustments, and preset your cutting height before beginning a running operational safety check on your TITAN RotaryCutter.

The running operational safety check may nowbe done. It is important that at any time during this safety check you detect a malfunction in either the cutter or tractor that you immediatelyshut the tractor off, remove its key, and make necessary repairs and/or adjustments before continuing on.

Make sure before starting the tractor that thepark brake is engaged, the power take-off isdisengaged, and the cutter is resting on the ground. Start the tractor and set the engine throttle speed at a low idle. Raise the cutter with the tractor's rear hydraulic lift control lever to transport position making sure that the power take-off shaft does not bind and does not contact the cutter frame. Lower the cutter to the ground and at a low engine speed engage the power take-off. If everything is running smoothly at a low idle, slowly raise the cutter to transport height checking for bind or chatter in the driveline. Lower the cutter to the ground and increase the tractor's engine rpm untilit reaches the cutter full power take-off operating speed of 540 rpm. If everything is still running smoothly, once more raise the cutter to transport height to check for driveline bind or chatter. Lower the cutter to the ground, return the engine to a low idle, and disengage the power take-off.

Position the adjustable stops on the tractor's 3-point lift lever so the cutter canbe consistently returned to the same cutting height and transport height.

You should now be ready to transport your cutter to the site at a safe ground speed. On roadways, transport in such a manner that faster moving vehicles can easily seeyou and pass you safely. Reduce your speed when traveling over rough and hillyterrain. Avoid quick or sharp steering corrections. Take extra care to ensure thatthe mower doesn't come into contact with obstacles such as trees, buildings, or fences. Use accessory lights and appropriate reflective devices to provide adequate warning to pedestrians and other vehicle operators when traveling on public roads and in the dark.

Comply with all local, state, and federallaws.

It is important that you inspect the area where you will be cutting and clear if of safety hazards and foreign objects. In the event you do strike an object stop the cutter and tractor immediately to inspect and make necessary repairs to the cutter before resuming operation.

You will need to maintain 540 rpm power take- off speed and 2 to 5 mph ground speed to produce a clean cut. Make a tractor gear and range selection that will enable you to maintain these speed combinations.

In the event you do strike an object stop the cutter and tractor immediately to inspect and make necessary repairs to the cutter before resuming operation.
You will need to maintain 540 rpm power take- off speed and 2 to 5 mph ground speed to produce a clean cut. Make a tractor gear and range selection that will enable you to maintain these speed combinations.

Generally, the quality of cut is better at lower ground speeds. Dense ground cover will create the need to slow down even more. In certain conditions tractor tires will roll grass down resulting in an uneven cut when grass fails to rebound. Should this happen, you may try reversing the directionof cut and/or double cut to achieve the desired finish. Avoid very low cutting heights especially on extremely uneven terrain.

Always cut downward on slopes and avoid crossing the face of steep slopes. Avoid sharp drops and cross diagonally through dips to prevent hanging up tractor and cutter. Slowdown in turns. Remember to look back often.

Now that you're prepared and well briefed you may begin cutting. Begin by doing the following: Reducing tractor's engine rpm.

- Make sure cutter is on the ground in cuttingposition and then engage power take-off.
- Raise engine rpm to the appropriate 540
- power take-off speed and begin cutting.

SECTION 4:

MAINTENANCE AND LUBRICATION

MAINTENANCE

Check all bolts after using the unit to be sure they are tight.

- *Buildup of debris around moving componentsand gearboxes is a fire hazard. Keep rotating parts and gearboxes free from debris to avoid serious injury and property damage.*
- *Improper oil level can cause bearing failureand be a fire hazard. Maintain proper gearbox oil level to avoid serious injury andproperty damage.*

SLIP-CLUTCH PROTECTED DRIVELINE

WARNING

To avoid serious injury or death:
Always follow "Tractor Shutdown Procedure" provided in this manual before dismounting the tractor.

Cutter drive components are protected from shock loads by a two-plate friction clutch.

CLUTCH RUN-IN

The clutch must be capable of slippage during operation to protect gearbox, driveline,and other drive train parts. Friction clutches should be "run-in" prior to initial operation and after long periods of inactivity. To preventdriveline and gearbox damage, repeat clutch "run-in" at the beginning of each season and when moisture and/or condensation seizes the inner friction plates.

Refer to Figure 4-1:

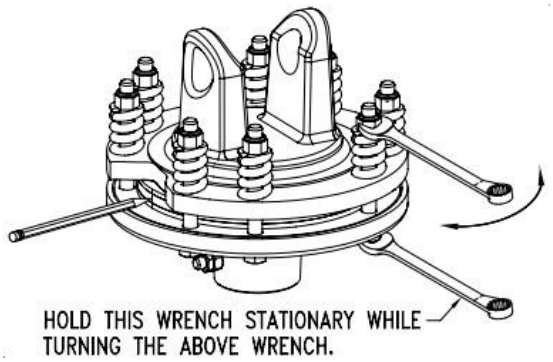


***Figure 4-1**: Clutch Run-In*

1. Using a pencil or other marker scribe aline across the exposed edges of the clutch plates and friction disks.
2. Carefully loosen each of the 8 spring retainer nuts by exactly 2 revolutions. Itwill be necessary to hold the hex end ofthe retainer bolt in order to count the exact number of revolutions.
3. Start the tractor and engage the drivelinedrive for 2-3 seconds to permit slippage of the clutch surfaces. Disengage the driveline, then re-engage a second time for 2-3 seconds. Disengage driveline, shut off tractor, and remove key. Wait forall components to stop before dismounting from tractor.

4. Inspect the clutch and ensure that the scribed markings made on the clutch plates have changed position. Slippage has not occurred if any tow marks on thefriction disk and plate are still aligned. A clutch that has not slipped must be disassembled to separate the friction disk plates. See "**Clutch Disassembly**" to disassemble clutch.
5. Tighten each of the 8 spring retainer nuts on the clutch housing exactly 2 revolutions to restore the clutch to theoriginal setting pressure.
6. The clutch should be checked during thefirst hour of operation and periodically each week. An additional set of scribe marks can be added to check for slippage. See "Clutch Assembly" to adjust for proper spring length.

CLUTCH DISASSEMBLY

If the clutch run-in procedure, (See **"Clutch Run-in"** on page 30), indicated that one or more of the friction disks did not slip, the clutch must be disassembled to separate the friction discs.

IMPORTANT:
Refer to Figure 4-2. Be sure to measure and record length ("A") of each clutch spring before disassembling the clutch.

Refer to Figure 4-2:

See **IMPORTANT NOTE** above before disassembling clutch. After measuring and recording each spring length, remove spring retainer nuts (#1), springs (#2), and bolts (#3). Each friction disc (#4) must then be separated from the metal surface adjacent to it.

INSPECTION

Inspect all parts for excessive wear and condition. Clean all parts that do not require replacement. The original friction disk thickness is 1/8" and should be replaced if the thickness falls below 3/32". If the clutch have been slipped to the point of "smoking",the friction disks may be damaged and should be replaced. Heat build-up may alsoaffect the yoke joints.

CLUTCH ASSEMBLY

Refer to Figure 4-2:

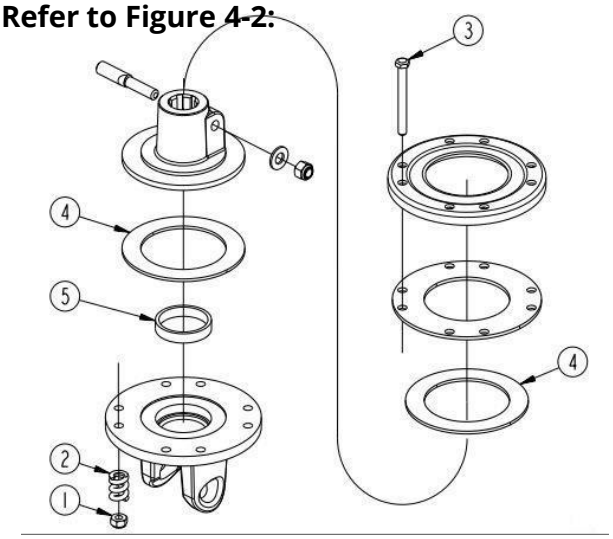


***Figure 4-2**: Clutch Disassembly*

Reassemble each friction disk (#4) next to the metal plate it was separated from. Makecertain all bushing are replaced in the samelocation as when removed. Install bolts (#3)through end plates and intermediate plates as shown. Place springs (#2) over the boltsand secure with nuts (#1).

Refer to Figure 4-3:

Progressively tighten each spring retainer bolt until correct spring height ("A" dimension)is reached.

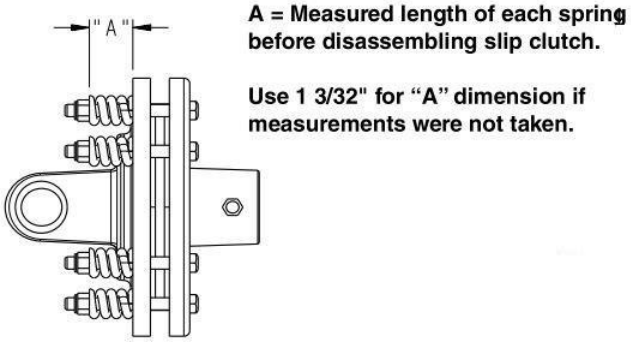


***Figure 4-3**: Clutch Adjustment*

CUTTER BLADE MAINTENANCE
DANGER

To avoid serious injury or death:

- *Always disconnect driveline from power*
- *take-off shaft before servicing underside ofcutter. The tractor can be started with power take-off engaged.*
- *Always secure equipment with solid, non- concrete supports before working under it. Never go under equipment supported by concrete blocks or hydraulics. Concrete canbreak, hydraulic lines can burst, and/or hydraulic controls can be actuated even when power to hydraulics is off.*

WARNING

To avoid serious injury or death:

- *Do not operate cutter with blades that are out-of-balance, bent, excessively worn, excessively nicked, or with blade bolts that are excessively worn. Such blades can breakloose at high speeds.*
- *Do not attempt to straighten a bent blade orweld on a blade. Do not attempt to modify ablade or weld on a blade. Do not attempt to modify a blade such as hard surfacing, heat treating, cold treating, or by any other method.*

IMPORTANT:

Only replace cutting blades in pairs. Replacing single blades can result inan out-of-balance condition that will contribute to premature bearing wear/breakage and/or structural cracks in gearbox and/or deck.

Always inspect cutting blades before each use. Make certain they are properly installed and are in good working condition. Replace any blade that is damaged, worn, bent, or excessively nicked. Never try to straighten a bent blade! Small nicks can be ground out when sharpening.

Remove cutting blades and sharpen or replace as follows:

1. Place tractor gear selector in park and/orset brakes, shut engine off, and remove ignition key.
2. Disconnect main driveline from tractor power take-off and secure cutter deck in the up position with solid supports beforeservicing underside of cutter.

Refer to Figure 4-4:

3. Remove access rubber cover (#5).
4. Rotate Blade bolt (#1) until in alignmentwith access hole (A).
5. Unscrew locknut (#3) to remove cutting blade (#6). Blade bolt (#1) is keyed andwill not turn freely.
6. Both blades should be sharpened at the same angle as the original cutting edge and must be replaced or re-ground at thesame time to maintain proper balance in the cutting unit. The following precautionsshould be taken when sharpening blades:
    a. Do not remove more material than necessary.
    b. Do not heat and pound out a cutting edge.
    c. Do not grind blades to a razor edge. Leave a blunt cutting edge approximately 1.5 mm

thick.

d. Always grind cutting edge so end of blade remains square to cutting edge and not rounded.
e. Do not sharpen back side of blade.
f. Both blades should weigh the same with not more than 1 ½ oz. difference. Unbalanced blades will cause excessive vibration which can damage gearbox bearing and create structural cracks.

Refer to Figure 4-5:

7. Carefully check cutting edges of blades in relation to blade carrier rotation to ensure correct blade placement. Blade Rotation is counterclockwise with cutting edge leading.

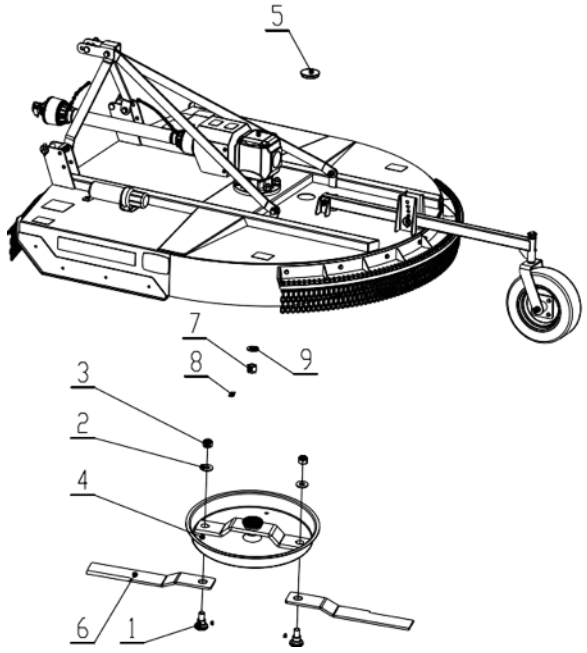


Figure 4-4: Cutter Blade Assembly

Refer to Figure 4-4:

WARNING

To avoid serious injury or death:

A locknut that has been removed can lose its thread locking properties. Reusing a used locknut can result in a thrown blade. Always use a new locknut when installing blades.

IMPORTANT:

Examine blade bolts (#1) and flat washers (#2) for excessive wear and replace if worn.

8. Insert blade bolt (#1) through blade (#6), blade mount bracket (#4), and plain washer (#2). Secure blade with a new locknut (#3) and torque to 400 ft.-lbs.
9. Replace access rubber cover (#5).
10. If replaced blade mount bracket (#4), nut (#7) on gearbox output shaft should be torque to 450 ft.

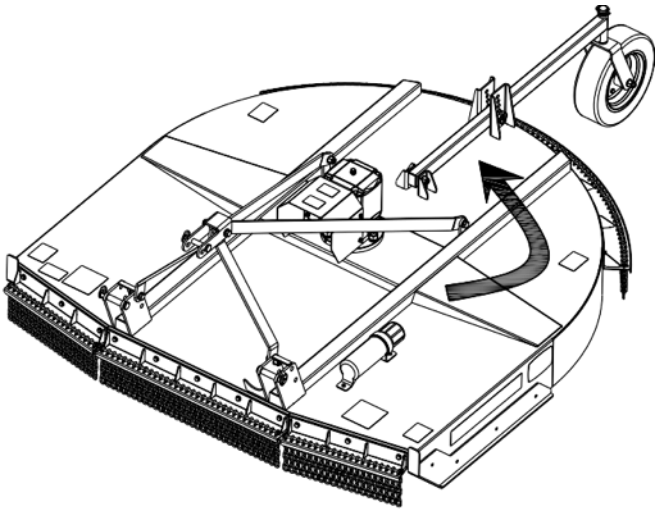


Figure 4-5*: Counterclockwise Blade Rotation*

LONG-TERM STORAGE

Clean, inspect, service, and make necessary repairs to the implement when storing it forlong periods and at the end of the season. This will help to ensure the unit is ready for field use the next time you hook-up to it.

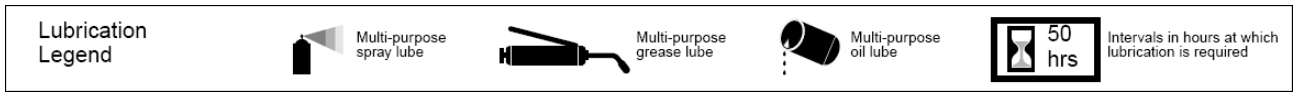
DANGER

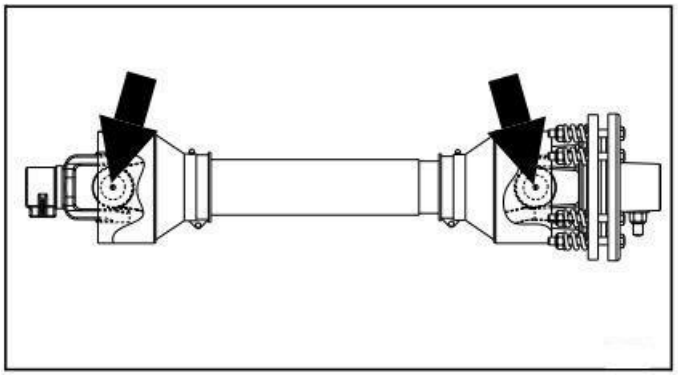
To avoid serious injury or death:

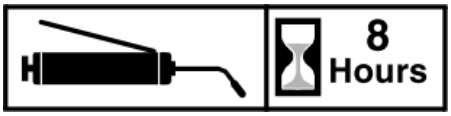
- *Always disconnect driveline from power take-off shaft before servicing drivetrain and cutter blades. The power take-off can be engaged if tractor is started.*

1. Clean off any dirt and grease that may have accumulated on the cutter and moving parts. Scrape off compacted dirt from the bottom of deck and then wash surface thoroughly with a garden hose. A coating of oil may also be applied to the lower deckarea to minimize oxidation.
2. See "**Cutter Blade Maintenance**" on page 32. Check blades and blade bolts forwear and replace if needed.
3. Inspect for loose, damaged, or worn parts and adjust or replace as need.
4. Be certain to purge gauge wheel spindle tube with grease to keep moisture out.
5. Lubricate all other wear surfaces as noted under "**Lubrication Points**" on page 35.Store cutter on a level surface in a clean, dry place. Inside storage will reduce maintenance and make for a long cutter life.
6. Follow all unhooking instructions on page 27 when disconnecting tractor from cutter.

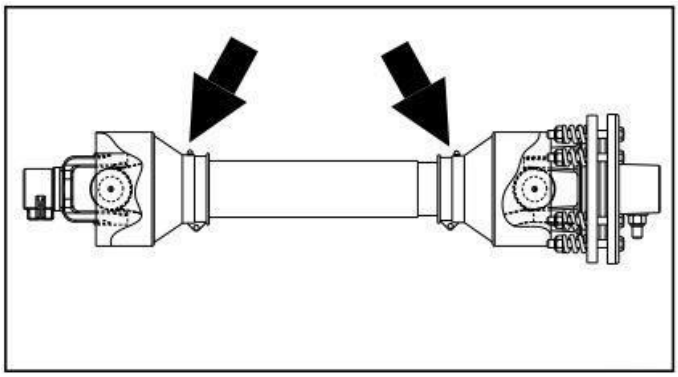
LUBRICATION POINTS

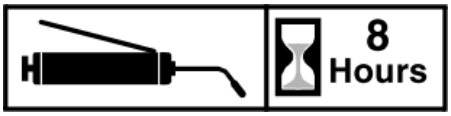




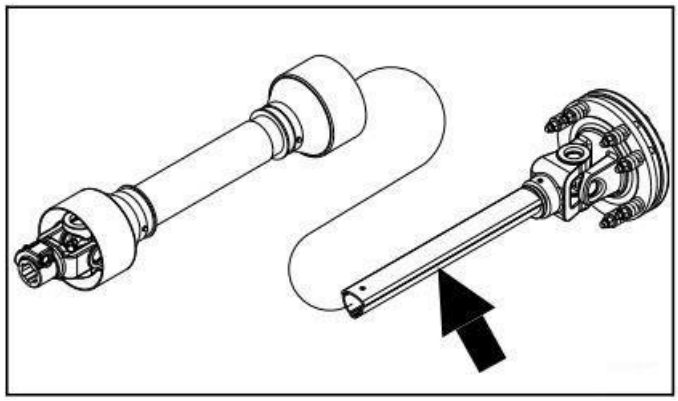


Driveline Shaft Yoke
Type of lubrication: multi-purpose grease
Quantity: 4 to 8 pumps

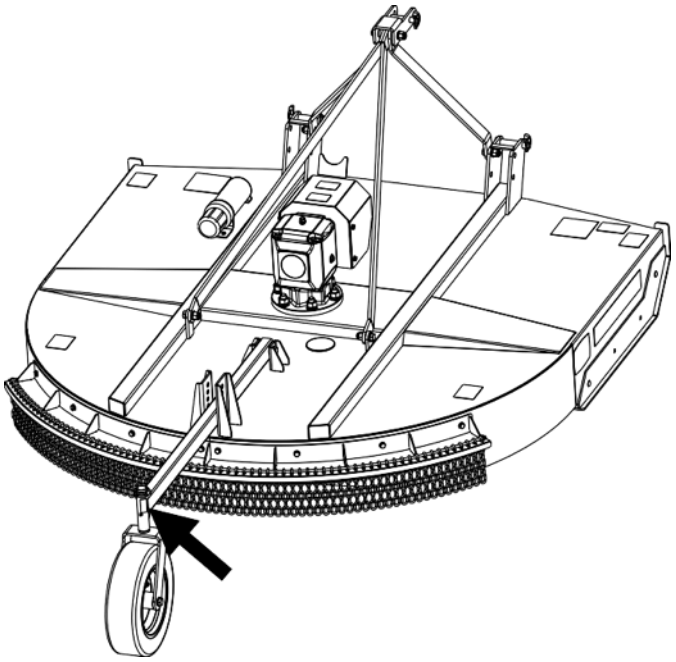


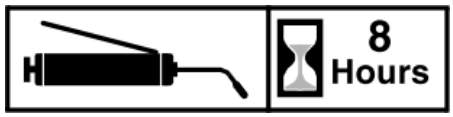


Driveline Shield Bearing
Type of lubrication: multi-purpose grease
Quantity: 4 to 8 pumps



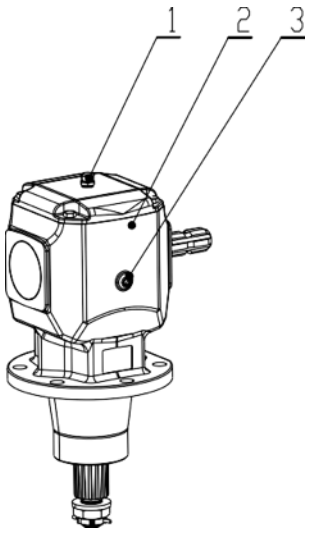
Driveline Profiles
Type of lubrication: multi-purpose grease
Quantity: Clean & coat inner profile tube of the driveline with a light film of grease and then reassemble.





GAUGE WHEEL SPINDLE TUBE

Important: See Step 5 under "**Long-Term Storage**" on page 34 when parking unit for an extended period.
Type of lubrication: Multi-purpose grease
Quantity: Until grease purges from spindle tube.



GEARBOX

Note: Do not overfill!! Cutter should be level when checking oil.
Oil expands when hot, therefore, always check oil level when cold.

Remove the level plug (#3). If oil is below bottom of plug hole, add recommended gear lube through the oil inlet cap (#1) until oil flows out of the level plug hole.
Re-install and tighten the level plug (#3) and the oil inlet cap (#1).

Type of lubrication: SAE EP 90W Gear Oil
Quantity: Fill until oil begins to flow out the level plug hole in gearbox.

SECTION 5: SPECIFICATION & CAPACITIES

TITAN PRO SERIES ROTARY CUTTER SPECIFICATIONS		
DESCRIPTION	**PRORC60**	**PRORC72**
HORSEPOWER	**25-9060HP**	
HITCH	**CAT. 1**	
WORKING WIDTH	**58" / 1473**	**68" / 1727**
OVERALL WIDTH	**65.5" / 1663.7**	**60" / 1966**
OVERALL LENGTH	**100" / 2540**	**115" / 2921**
NET WEIGHT	**815 LB / 369.7 KG**	**935 LB / 424.1 KG**
CUTTING HEIGHT	**1.2" - 12"**	
CUTTING CAPACITY	**2" DIAMETER**	
DECK THICKNESS	**4MM**	
HECK HEIGHT	**10" / 254MM**	
SAFETY GUARDS	**FRONT AND REAR CHAIN GUARD**	
SKIDS	**THICKNESS 6MM, REPLACEABLE**	
BLADES	**THICKNESS 12MM, WIDTH 100MM, MATERIAL 60SI2MN**	
GEARBOX RATING	**75HP**	
GEARBOX	**540 RPM, PTO DRIVEN GEARBOX**	
QUICK HITCH COMPATIBLE	**YES**	
PTO	**SLIP CLUTCH PTO**	
COLORS	**CHARCOAL (MAIN BODY) + ORANGE (EVERYTHING ELSE)**	
IRON CREASE SIZE (L X W X H)	**1937x1677x722mm**	**2212x1952x722mm**

SECTION 6: TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
OIL LEAKING	GEARBOX OVERFILLED	DRAIN TO SIDE PLUG HOLE
	SEALS DAMAGED	REPLACE SEALS
	GRASS OR WIRE WRAPPED ON SHAFTIN SEAL AREA	CHECK SEAL AREAS DAILY
DRIVELINE YOKE OR CROSS	SHOCK LOAD	AVOID HITTING SOLID OBJECTS
	NEEDS LUBRICATION	LUBRICATE EVERY 8 HOURS
DRIVELINE CLUTCH IS SLIPPING	SCALPING THE GROUND	RAISE CUTTING HEIGHT
	CUTTING TOO FAST	REDUCE TRAVEL SPEED
	POWER TAKE-OFF BEING ENGAGEDTOO FAST AT HIGH ENGINE RPM	SLOWLY ENGAGE POWER TAKE-OFF AT LOWENGINE RPM
	CUTTING OVER SOLID OBJECTS	AVOID SOLID OBJECTS
	CLUTCH SPRING NOT SET CORRECTLY	CHECK DIMENSION FOR SPRING SETTING ON CLUTCH
BENT DRIVELINE (NOTE: DRIVELINE SHOULD BE REPAIRED OR REPLACED IF BENT)	CONTACTING FRAME	REDUCE LIFT HEIGHT IN TRANSPORT POSITION
	CONTACTING DRAWBAR	REPOSITION DRAWBAR
	BOTTOMING OUT	SHORTEN DRIVELINE
DRIVELINE TELESCOPING TUBE FAILING	NEEDS LUBRICATION	LUBRICATE EVERY 20 HOURS
	SHOCK LOAD	AVOID HITTING SOLID OBJECTS
DRIVELINE TELESCOPING TUBE WEARING	NEEDS LUBRICATION	LUBRICATE EVERY 20 HOURS
BLADES WEARING EXCESSIVELY	CUTTING ON SANDY GROUND	RAISE CUTTING HEIGHT
	CONTACTING GROUND FREQUENTLY	RAISE CUTTING HEIGHT
BLADE BREAKING	HITTING SOLID OBJECTS	AVOID HITTING SOLID OBJECTS
BLADES COMING LOOSE	BLADE DOES NOT TIGHTEN PROPERLY	TIGHTEN BLADE HARDWARE (REFER TO "CUTTINGBLADE MAINTENANCE" ON PAGE 32.
	NOT USING NEW LOCKNUT WHEN REPLACING BLADES	USE NEW LOCKNUTS.

SECTION 6: TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
BLADE CARRIER BECOMES LOOSE	RUNNING LOOSE IN THE PAST	REPLACE GEARBOX OUTPUT SHAFT AND BLADECARRIER
	BLADE CARRIER HARDWARE NOTTIGHT ENOUGH	TIGHTEN TO SPECIFIED TORQUE
BLADE BOLT HOLES WORN	BLADE HARDWARE RUNNING LOOSE	REPLACE BLADES, BLADE BOLTS, AND LOCKNUT IFWORN
BLADE CARRIER BENT	HITTING SOLID OBJECTS	AVOID HITTING SOLID OBJECTS AND REPLACEBLADE CARRIER
EXESSIVE SIDE SKID WEAR	CUTTING HEIGHT NOT LEVEL	ADJUST CUTTER HEIGHT
	SOIL ABRASIVE	ADJUST CUTTER HEIGHT
	CUTTING TOO LOW	ADJUST CUTTER HEIGHT
TAIL WHEEL SUPPORT FAILING	LOWERING TOO FAST	ADJUST RATE OF DROP
	HITTING OBJECTS WHEN TURNING	REDUCE SPEED ON TURNS
EXCESSIVE VIBRATION	DRIVELINE BENT	REPLACE DRIVELINE
	BLADES LOOSE	REPLACE DRIVELINE
	BLADE CARRIER BENT	REPLACE BLADE CARRIER
	BLADE BROKEN	REPLACE BLADE
	BLADE WILL NOT SWING	REMOVE AND INSPECT BLADE
	BLADES HAVE UNEQUAL WEIGHT	REPLACE BOTH BLADES
	DISHPAN BENT	REPLACE DISHPAN

SECTION 7: APPENDIX

BOLT TORQUE

The tables shown below give correct torque values for various bolts and cap screws. Tighten all bolts to the torques specified unless otherwise noted. Check tightness of boltsperiodically, using bolt torque chart as a guide. Replace hardware with the same strengthbolt.

Torque Values Chart for Common Bolt Sizes

Bolt Size (Inches)	Bolt Head Identification: Grade 2		Grade 5		Grade 8	
in-tpi [1]	N·m [2]	ft-lb [3]	N·m	ft-lb	N·m	ft-lb
1/4" - 20	7.4	5.6	11	8	16	12
1/4" - 28	8.5	6	13	10	18	14
5/16" - 18	15	11	24	17	33	25
5/16" - 24	17	13	26	19	37	27
3/8" - 16	27	20	42	31	59	44
3/8" - 24	31	22	47	35	67	49
7/16" - 14	43	32	67	49	95	70
7/16" - 20	49	36	75	55	105	78
1/2" - 13	66	49	105	76	145	105
1/2" - 20	75	55	115	85	165	120
9/16" - 12	95	70	150	110	210	155
9/16" - 18	105	79	165	120	235	170
5/8" - 11	130	97	205	150	285	210
5/8" - 18	150	110	230	170	325	240
3/4" - 10	235	170	360	265	510	375
3/4" - 16	260	190	405	295	570	420
7/8" - 9	225	165	585	430	820	605
7/8" - 14	250	185	640	475	905	670
1" - 8	340	250	875	645	1230	910
1" - 12	370	275	955	705	1350	995
1-1/8" - 7	480	355	1080	795	1750	1290
1 1/8" - 12	540	395	1210	890	1960	1440
1 1/4" - 7	680	500	1520	1120	2460	1820
1 1/4" - 12	750	555	1680	1240	2730	2010
1 3/8" - 6	890	655	1990	1470	3230	2380
1 3/8" - 12	1010	745	2270	1670	3680	2710
1 1/2" - 6	1180	870	2640	1950	4290	3160
1 1/2" - 12	1330	980	2970	2190	4820	3560

Bolt Size (Metric)	Bolt Head Identification: 5.8 Class 5.8		8.8 Class 8.8		10.9 Class 10.9	
mm x pitch [4]	N·m	ft-lb	N·m	ft-lb	N·m	ft-lb
M 5 X 0.8	4	3	6	5	9	7
M 6 X 1	7	5	11	8	15	11
M 8 X 1.25	17	12	26	19	36	27
M 8 X 1	18	13	28	21	39	29
M10 X 1.5	33	24	52	39	72	53
M10 X 0.75	39	29	61	45	85	62
M12 X 1.75	58	42	91	67	125	93
M12 X 1.5	60	44	95	70	130	97
M12 X 1	90	66	105	77	145	105
M14 X 2	92	68	145	105	200	150
M14 X 1.5	99	73	155	115	l215	160
M16 X 2	145	105	225	165	315	230
M16 X 1.5	155	115	240	180	335	245
M18 X 2.5	195	145	310	230	405	300
M18 X 1.5	220	165	350	260	485	355
M20 X 2.5	280	205	440	325	610	450
M20 X 1.5	310	230	650	480	900	665
M24 X 3	480	355	760	560	1050	780
M24 X 2	525	390	830	610	1150	845
M30 X 3.5	960	705	1510	1120	2100	1550
M30 X 2	1060	785	1680	1240	2320	1710
M36 X 3.5	1730	1270	2650	1950	3660	2700
M36 X 2	1880	1380	2960	2190	4100	3220

[1] in-tpi = nominal thread diameter in inches-threads per inch

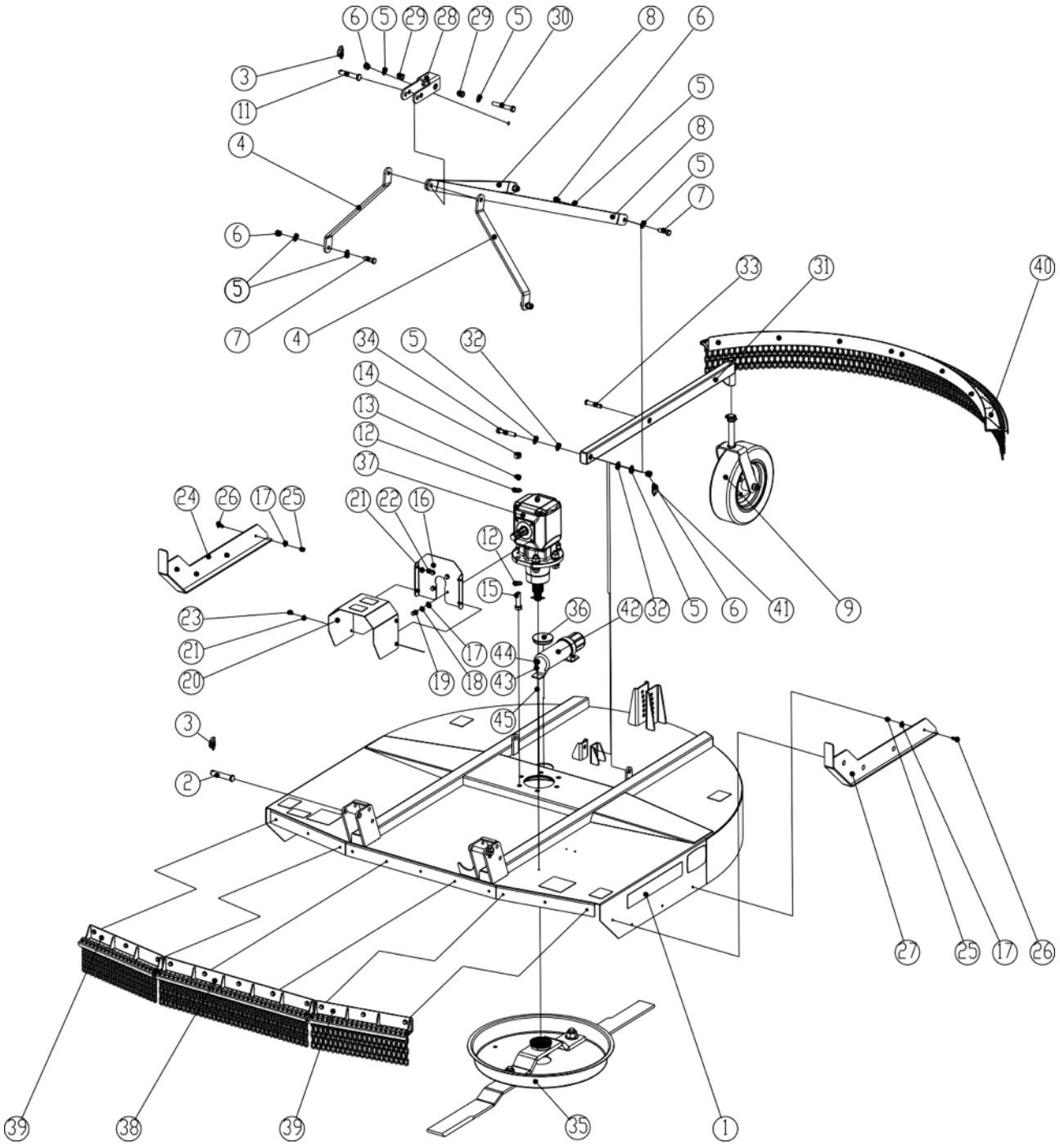
[2] N· m = newton-meters

[3] ft-lb= foot pounds

[4] mm x pitch = nominal thread diameter in millimeters x thread pitch

Torque tolerance + 0%, -15% of torquing values. Unless otherwise specified use torque values listed above.

STANDARD SERIES ROTARY CUTTER PARTS LIST

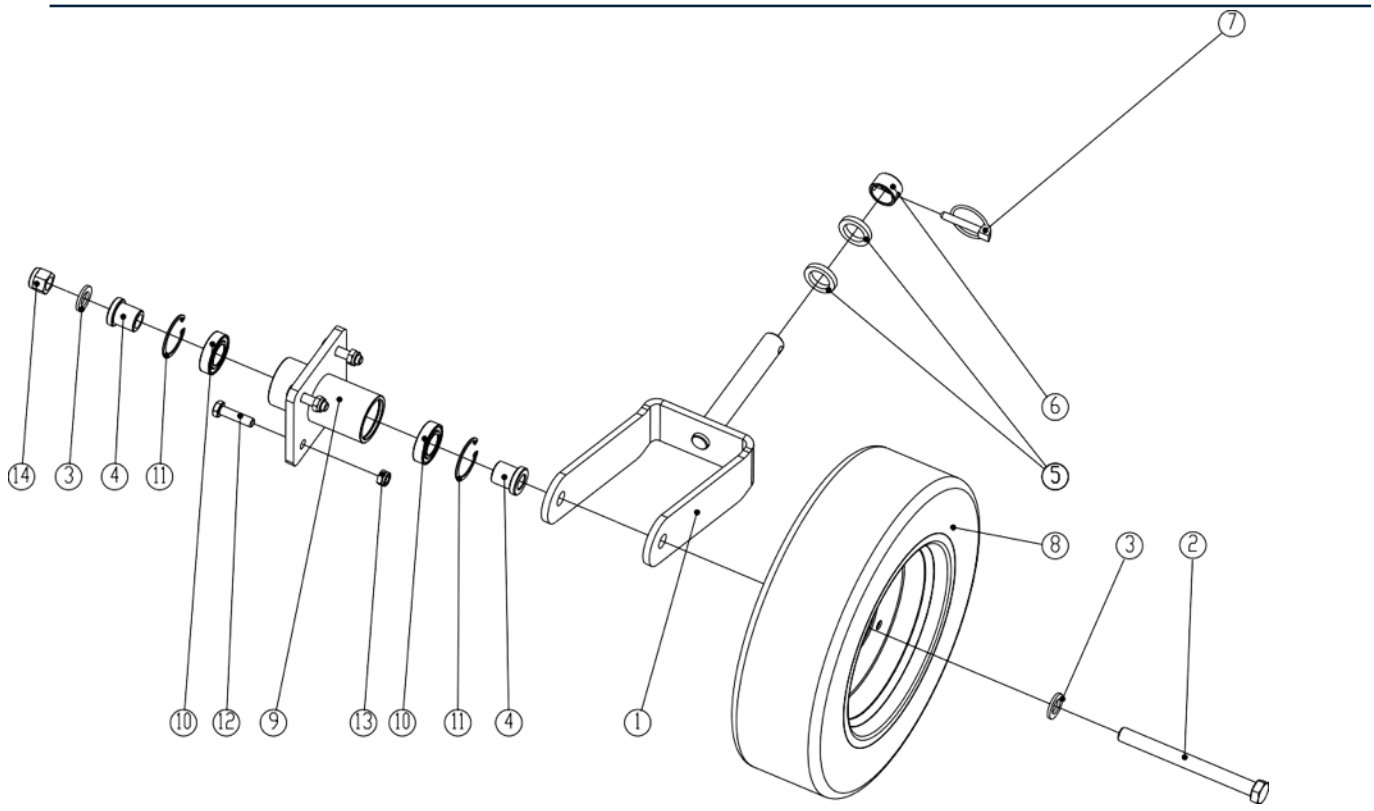


STANDARD SERIES ROTARY CUTTER PARTS LIST

Item	Ref. No.	Part Description	Qty.	Remark
1	4030100295	Cutter Deck	1	PRORC60"
	4030100296		1	PRORC72"
2	4020000165	Hitch pin - Lower	2	
3	4300100004	Safety lock pin φ11x50	3	
4	4010000159	Front brace	2	
5	7040100008	Plain washer 16x30x3	12	
6	7030500020	Locknut M16	6	
7	7010100034	Bolt M16x50	4	
8	4010000162	Rear brace	2	PRORC60"
	4010000161		2	PRORC72"
9	BC180.00.00.000-1	Wheel tire assembly	1	
10	4300400002	Pressure lubricator M8x1	1	
11	4020000017	Hitch pin - Upper	1	
12	7040100009	Plain washer 20x37x3	12	
13	7040400009	Spring washer 20	6	
14	7030100009	Hex. Nut M20	6	
15	7010100042	Bolt M20x70	6	
16	4010000183	PTO guard mount	1	
17	7040100005	Plain washer 10x20x2	12	
18	7040400005	Spring washer 10	4	
19	7010100012	Bolt M10x20	4	
20	4010000165	PTO guard	1	
21	7040100004	Plain washer 8x16x1.6	8	
22	7030500016	Locknut M8	4	
23	7010100006	Bolt M8x20	4	
24	4030100301	Skid weldment - R	1	PRORC60"
	4030100307		1	PRORC72"
25	7030500017	Locknut M10	8	
26	7010400004	RHSNB M10x25 GR10.9	8	
27	4030100302	Skid weldment - L	1	PRORC60"
	4030100308		1	PRORC72"
28	4010000144	Pivoting upper hitch - black	1	
29	4020000193	Spacer	2	
30	7010200010	Bolt M16x110	1	
31	4030100298	Wheel frame weldment	1	
32	7040500003	Nylon washer 16x30x3	2	
33	4020000167	Wheel height adjusting pin	1	
34	7010200018	Bolt M16x90	1	
35	BC150.00.00.000-1	Blade mount assembly	1	PRORC60"
	BC180.00.00.000-2		1	PRORC72"
36	4100200027	Access rubber cover φ91.3	1	
37	4040100017	Gearbox 75HP	1	

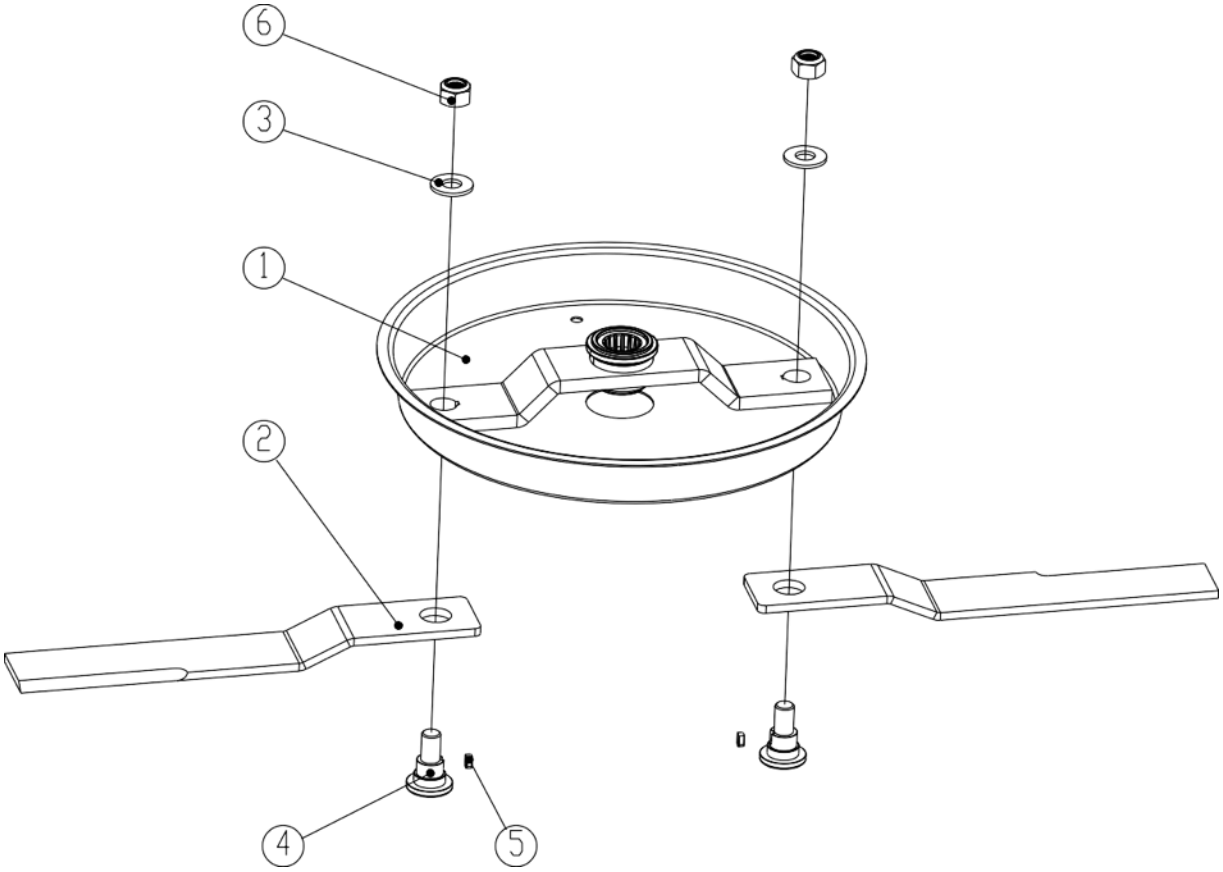
Item	Ref. No.	Part Description	Qty.	Remark
38	BC180.00.00.000-3	Front chain guard assy - Mid	1	
39	BC150.00.00.000-2	Front chain guard assy - Sid	2	PRORC60"
	BC180.00.00.000-4		2	PRORC72"
40	BC150.00.00.000-3	Rear chain guard assy	1	PRORC60"
	BC180.00.00.000-5		1	PRORC72"
41	4300100003	Safety lock pin φ8x45	1	
42	4100200001	Manual holder	1	
43	7040100003	Plain washer 6x12x1.6	3	
44	7010100001	Bolt M6x20	3	
45	7030500015	Locknut M6	3	

WHEEL TIRE ASSEMBLY PARTS LIST



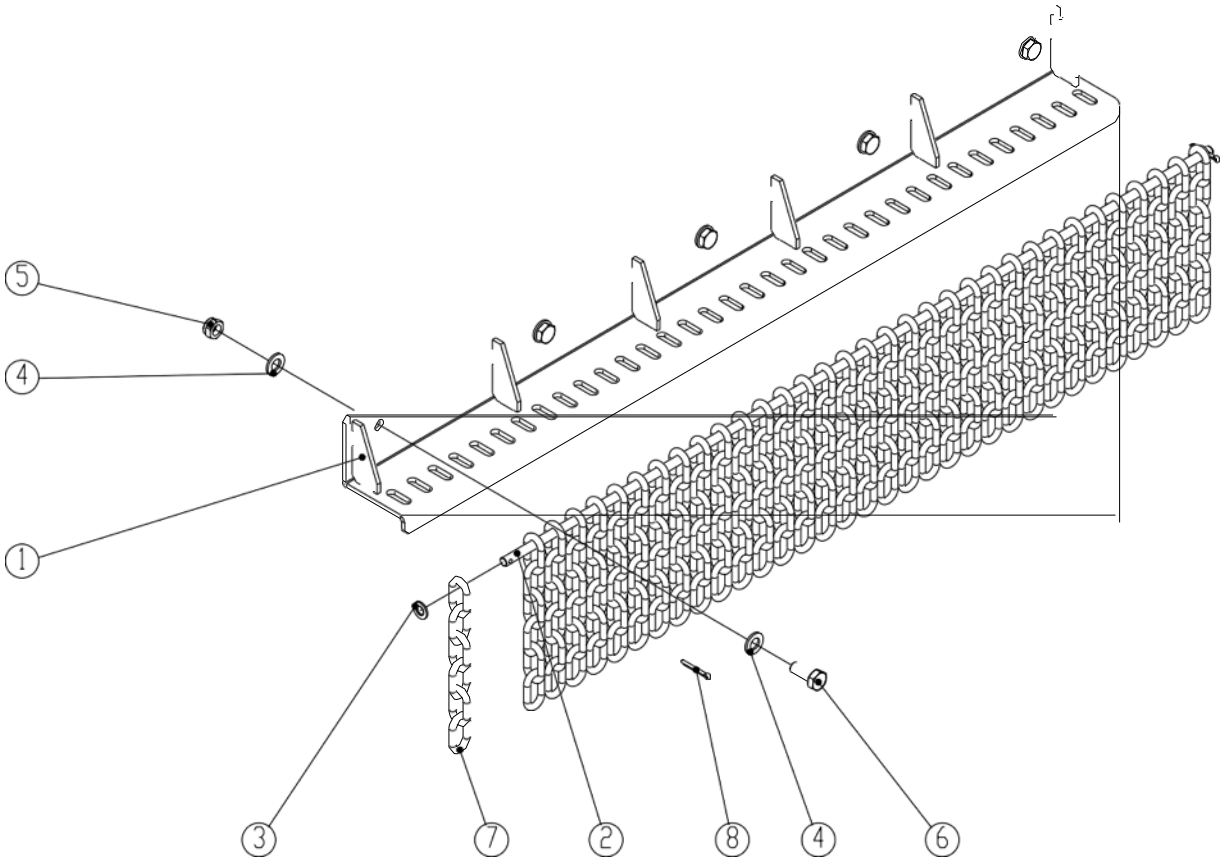
ITEM	REF. NO.	DESCRIPTION	QTY
(1)	4030100297	TAILWHEEL YOKE	1
(2)	7010200031	BOLT M16X170	1
(3)	7040100008	PLAIN WASHER 16X30X3	2
(4)	4020000166	BUSHING	2
(5)	4020000081	SPACER H=6	2
(6)	4020000086	CAP SHAFT MOUNT	1
(7)	4300100003	SAFETY LOCK PIN Φ8X45	1
(8)	4100700003	RUBBER TIRE 4.50-8	1
(9)	4030100309	TAIL WHEEL HUB	1
(10)	7060100006	DEEP GROOVE BALL BEARING 6005-2RZ	2
(11)	7090200011	CIRCLIP FOR HOLE Φ47	2
(12)	7010100028	BOLT M10X40	4
(13)	703050001	LOCKNUT M10	4
(14)	7030500020	LOCKNUT M16	1

BLADE MOUNT ASSEMBLY PARTS LIST



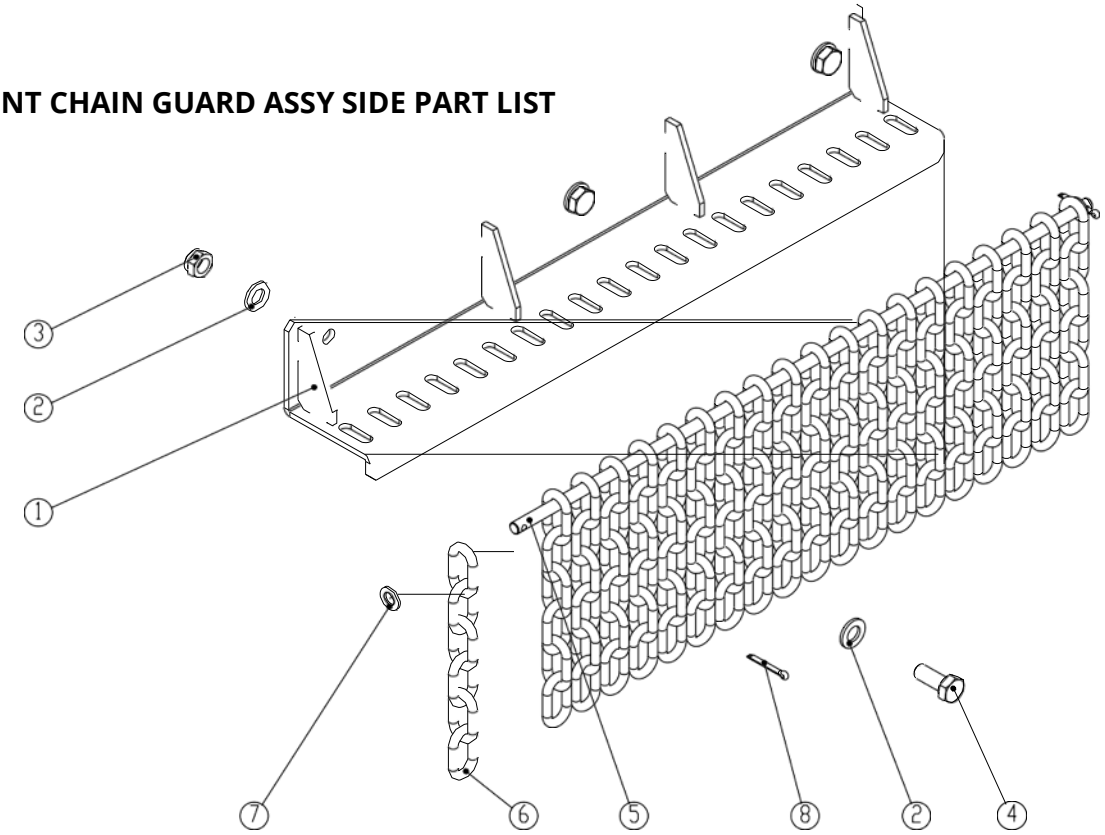
ITEM	REF. NO.	DESCRIPTION	QTY	REMARK
(1)	4030100303	JUMPER WELDMENT	1	
(2)	4290200014	CUTTER BLADE	2	PRORC60
	4290200013		2	PRORC72
(3)	4010000163	BLADE PLAIN WASHER	2	
(4)	4020000171	BLADE BOLT	2	
(5)	BC180.00.00.017	FLAT KEY 10*8*19	2	
(6)	7030500021	LOCKNUT M27	2	

FRONT CHAIN GUARD ASSY MID PART LIST

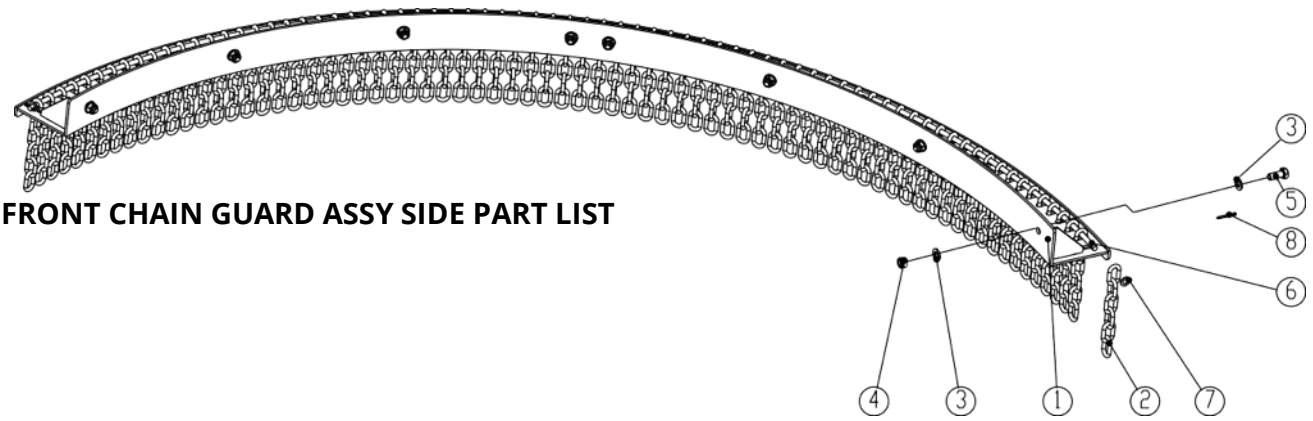


ITEM	REF. NO.	DESCRIPTION	QTY	REMARK
(1)	4030100299	FRONT CHAIN GUARD BRACKET MID	1	
(2)		FRONT CHAIN GUARD MOUNT ROD-MID	1	
(3)	7040100004	PLAIN WASHER 8*16*1.6	2	
(4)	7040100005	PLAIN WASHER 10*20*2	10	
(5)	7030500017	LOCKNUT M10	5	
(6)	7010100013	BOLT M10*25	5	
(7)	4270100009	CHAIN GUARD – 6 HOOPS	34	
(8)	7100100001	COTTER PIN 3*25	2	

FRONT CHAIN GUARD ASSY SIDE PART LIST



ITEM	REF. NO.	DESCRIPTION	QTY	REMARK
(1)	4030100300	FRONT CHAIN GUARD BRACKET – SIDE	1	PRORC60
	4030100305		1	PRORC72
(2)	7040100005	PLAIN WASHER 10*20*2	6	
(3)	7030500017	LOCKNUT M10	3	
(4)	7010100013	BOLT M10*25	3	
(5)	BC180.00.00.003	FRONT CHAIN GUARD MOUNT ROD – SIDE	1	PRORC60
	BC150.00.00.001		1	PRORC72
(6)	4270100009	CHAIN GUARD – 6 HOOP	20	PRORC60
			14	PRORC72
(7)	7040100004	PLAIN WASHER 8*16*1.6	2	
(8)	7100100001	COTTER PIN 3*25	2	



FRONT CHAIN GUARD ASSY SIDE PART LIST

ITEM	REF. NO.	DESCRIPTION	QTY	REMARK
(1)	4030100304	REAR CHAIN GUARD BRACKET	1	PRORC60
	4030100306		1	PRORC72
(2)	4270100009	CHAIN GUARD – 6 HOOPS	74	PRORC60
			68	PRORC72
(3)	7040100005	PLAIN WASHER 10*20*2	16	
(4)	7030500017	LOCKNUT M10	8	
(5)	7010100013	BOLT M10*25	8	
(6)	BC180.00.00.004	REAR CHAIN GUARD MOUNT ROD	1	PRORC60
	BC150.00.00.002		1	PRORC72
(7)	7040100004	PLAIN WASHER 8*16*1.6	2	
(8)	7100100001	COTTER PIN 3*25	2	

ACKNOWLEDGEMENT OF RISK AND RELEASE OF LIABILITY

The use of any equipment, including this one, involves the potential risk of injury. Apart from any warranty claim that might be presented for a claimed defect in material or workmanship of the product, you accept and assume full responsibility for any and all injuries, damages (both economic and non-economic), and losses of any type, which may occur, and you fully and forever release and discharge Titan, its insurers, employees, officers, directors, associates, and agents from any and all claims, demands, damages, rights of action, or causes of action, present or future, whether the same be known or unknown, anticipated, or unanticipated, resulting from or arising out of the use of said equipment.

This equipment must be used with care by capable and competent individuals under supervision, if necessary.

TITAN LIMITED WARRANTY: TERMS, EXCLUSIONS AND LIMITATIONS OF REMEDIES

This product comes with a one (1) year limited warranty that can be found at www.palletforks.com/warranty.html. Please review the same for all details regarding the Titan Limited Warranty.

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